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RAIL-ROAD NEWS.

The First Locomotive.

The Charleston Mercury gives the following account of ths first locomotive built in this country:—

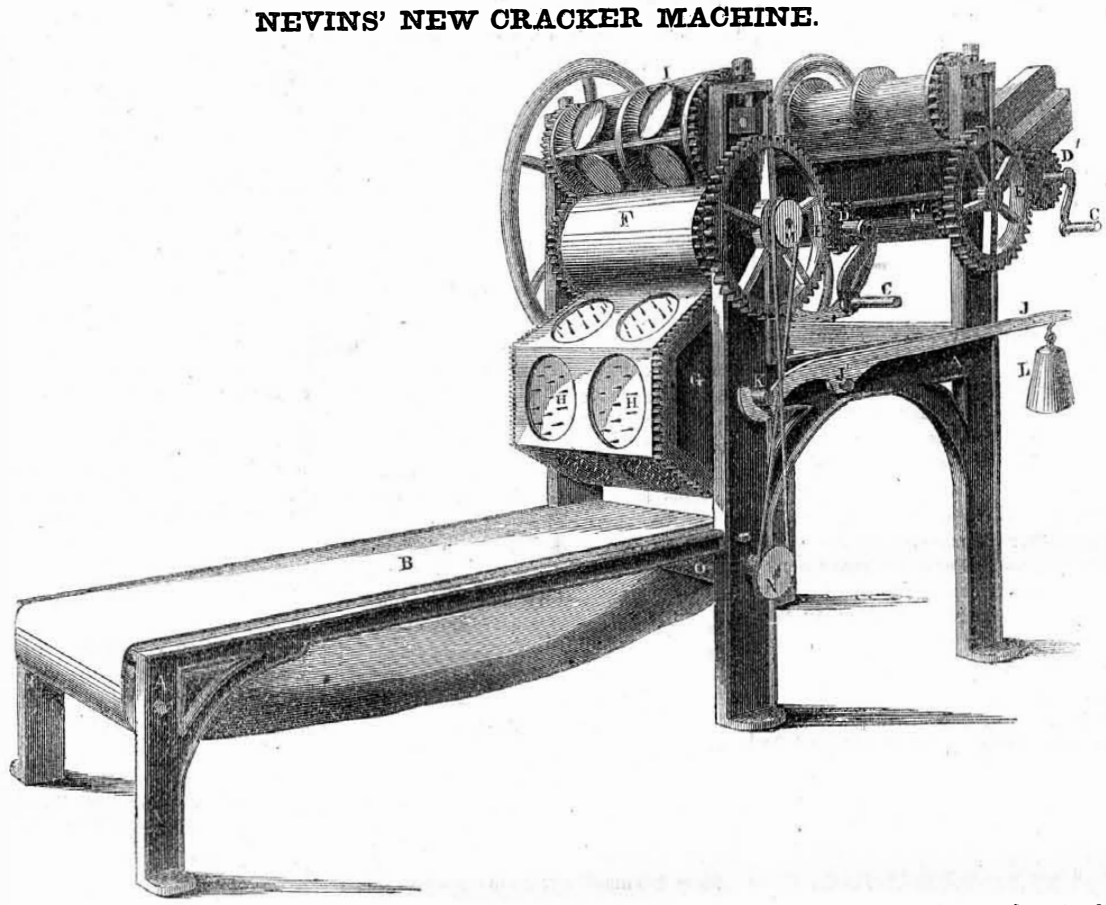
"The South Carolina railroad was the first one that was commenced in the United States, to be worked by steam power, and when finished and ready for use, which was on the 2nd of October, 1833, it was the longest railroad in the world—being 136 miles from Charleston to Hamburg. It was the first railroad in the United States that carried the mails, and the first locomotive built in this country was constructed for and used on our road.

This engine would be a curiosity it placed alongside of one of Norris' or Baldwin's last improvements. It was named the "Best Friend," and was built under the direction of E. L. Miller, of Walterboro, at the West Point Foundry of Messrs. Kemble, New York. The engine had no tender, but carried its own wood and water, with spokes like a wagon, and the wheel armed with a wrought-iron tire. The engineer who ran the first locomotive that was used on this or any other road in the United States, was N. K. Darrell, an apprentice brought up in Dotterer's Machine Shop. He is now, and has been for many years past, the well-known, and efficient master of the Company's Workshops in Charleston.

After a few trips, the wooden wheels of the "Best Friend" gave way, and were replaced by cast-iron ones, the pattern for which were made, and the wheels cast, by another of Dotterer's apprentice boys, J. D. Petsch, then the foreman of that well-known establishment. These, it is believed, were the first cast-iron wheels used on railroads in this country. The "Best Friend" blew up after a brief career, and from its wreck another engine was built by Mr. Petsch, at the company's workshop, of which he was then in charge. It was called the Phœnix. Previously to this the crank axle had been used; but in the reconstruction of this engine, Mr. Petsch introduced the straight axle, with outside connections, and also wrought-iron tires on the cast-iron driving wheels, neither of which, it is believed, had before been tried in this country. Mr. Petsch is now the able and efficient superintendent of the Motive-power and Transportation Department of the South Carolina Railroad, in which important position he has rendered valuable service, by the many improvements he has embodied in the plan and construction of locomotives, machinery, workshops, &c."

The Hudson river has been closed the present season 102 days, being twelve days more than the average of the 67 years from 1785 to 1852. The longest time of suspension of navigation on record is 136 days, in 1842–3—the shortest in 1805–6, 42 days. The boats are now plying regularly on the river, the morning and evening lines having both commenced operations.

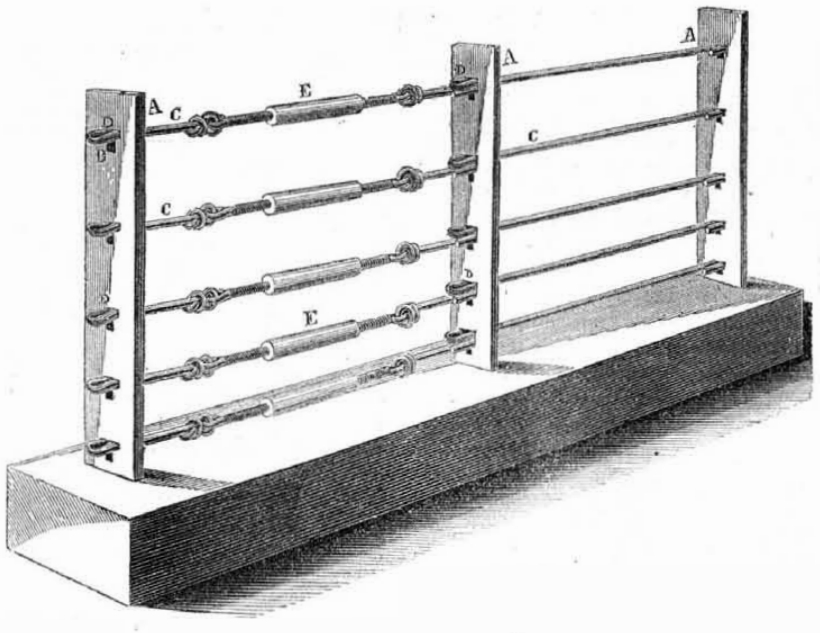
NEVINS' NEW CRACKER MACHINE.



The accompanying engraving is a perspective view of the improved machine of William R. Nevins, No. 87 Eldridge street, this city. It is for rolling, moulding, and docking the dough of "hand crackers." Mr. Nevins has been experimenting on it for several years, and has brought it to its present perfect state.

A is the frame of the endless apron, B, which carries the cut dough forward from the dockers, to be put into the oven. At the back of the machine there is a feed board, on which the dough is placed, which is taken in and rolled between the two hind rollers into a sheet of the proper thickness. It is then carried in between the cutter rollers, I, and cut into proper size, but not shape; the roller, F, carries the cut dough over and under, when the dockers, H H, revolving in a contrary direction, dock and mould the cut dough into the proper shape, and then carry it over and drop it on the endless apron, which carries it along to be put into the oven. The crank, C, behind, is to drive the gearing D', E', of the pressing rollers. The other crank, C, is to drive the gearing, E D, which moves the shaft, M, and by the cogs on the rollers gives motion to the cutters, and the docker drum, G. A band from the pulley, on shaft M, to the pulley, N, gives motion to the endless apron. The docker drum, G, has springs inside, which act on the moulds, H H, and make them throw the cut crackers on the apron. It will be observed that the dockers are on a flat surface—the drum, G, is an octagon; it has been found that when crackers are docked between two curved surfaces—two rollers—they are liable to split after being baked. The cutting on a flat surface obviates this evil; but how to obviate it and still employ rotating rollers, was the question; this has been done by Mr. Nevins in this machine. The axis, K, of the docker drum, G, rests on bearings of a weighted lever, J' J L; the cogs, therefore, on the octagon drum allow it, the docker, to move up and down on its axis in a slot of the frame, so as to gear always with the roller, F, above, and at the same time keep always at the same surface distance from the said roller. By this arrangement the dough undergoes a second process after being cut; the crackers are moulded and pressed on both sides, and the toughest dough made into crackers in this machine, does not split. One crank can direct the machine. More information may be obtained by letter addressed to Mr. Nevins, directed as mentioned above.

WICKERSHAM'S WIRE FENCE.---Fig. 1.



The accompanying engravings are a perspective view, fig. 1; and a vertical section through one post, fig. 2, of the Patent Wire Fence of John B. Wickersham, of this city. The same letters refer to like parts. A represents the posts, which may be made of flat bar iron, having in them any suitable number of T shaped mortises, and which may have either end of the mortise up; or the mortises may be square or oblong as seen at B. The rails, C, may be made of round, flat, or any other shaped bars or rods, either in whole or in part. Said rails have loops turned upon both of their ends; and when they are to be inserted in the post hole, B, they are to be slipped through the hole far enough to escape the turned end of the loop, and then turned half round and drawn back, which will bring them to the position shown in fig. 1, in which position they cannot be turned to draw them out; the loops fill up the entire space, one resting upon the other, and the shoulder in the mortise will not admit of their being raised. The rails cannot be withdrawn until slipped back, and then turned half round. To prevent this being done, the loop is bent out on both sides of the post, as seen at fig. 2, and the rail then cannot be drawn out on either side. By this means a rigid and strong fence is made with few pieces, little labor, and at a low price; only single posts are used, and no keys, bolts, or wedges, are required—the mortises and loops are substitutes for the keys and ties in other wire fences.

At suitable distances on a line of fence, say at about every one hundred yards, more or less, there are placed screw buckles, E, for letting out and screwing up the fence, to compensate for the expansion and contraction of the metal, if necessary; but in practice it has been found that the elasticity of the loops,

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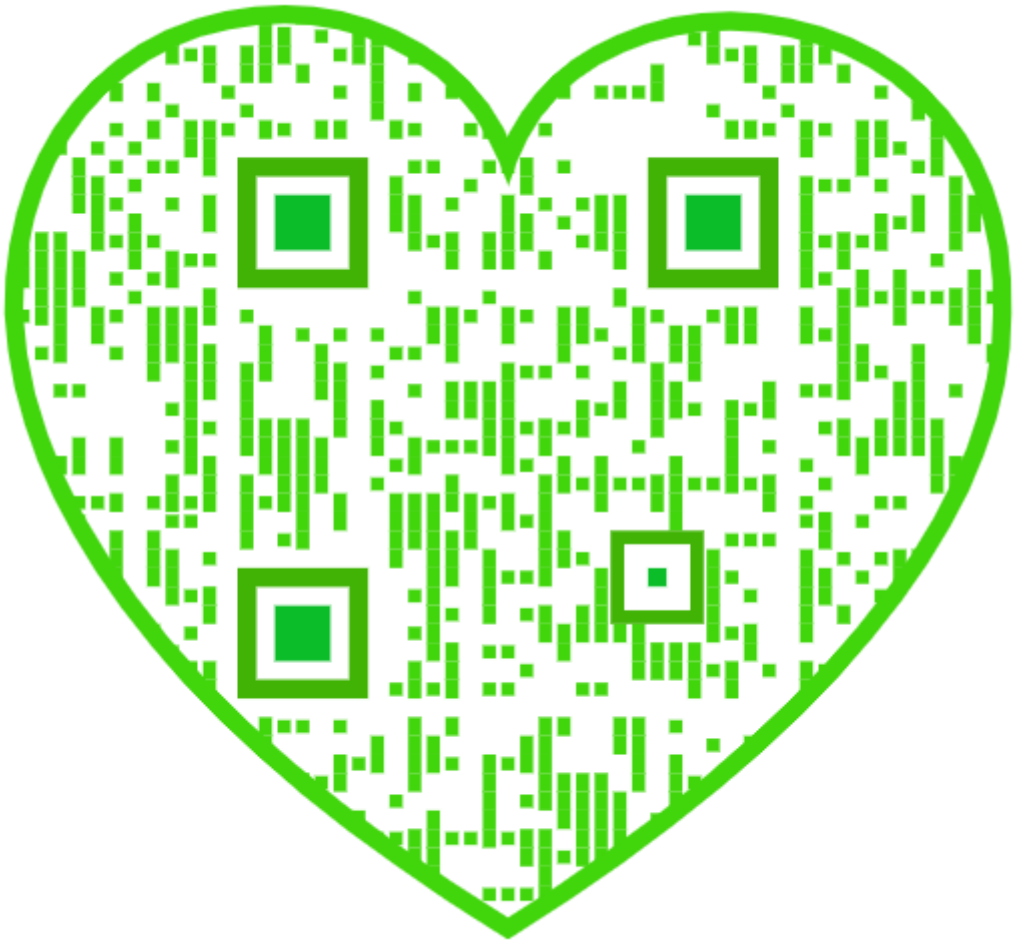
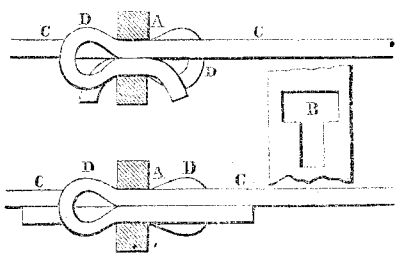


upon which the horizontal strain is exerted, is nearly quite sufficient for such expansion or contraction. The screw buckles are of more essential service in putting up the fence and equalizing the strain upon the posts when put up.

The posts, rails, &c., are all prepared by machinery, and may be made of any size, shape, and material packed up into fagots for easy handling and transportation, and can be set up by any person who has the least skill in fence making. The posts are usually set about 16 inches into the ground, and made

FIG. 2.



tight in their places by ramming gravel or stone alongside. The claim is for the construction of the loops and mortises, so as to obviate the use of keys, wedges, double posts, &c. The improvement is certainly a most excellent one in wire fences, one that offers superior advantages to any other. For farmers it is certainly an important improvement The wire used for the rails is a quarter of an inch in diameter—smaller is not recommended, as cattle are not liable to notice a smaller size. The posts are planted about 12 feet apart, and the height is about 4½ feet. A fence of five rails, including iron posts, screws, &c., costs $1,50 per rod.

More information about the purchase of fence patent rights, &c., may be obtained by letter, or by calling at the office, 312 Broadway, New York.

MISCELLANEOUS.

Inventors' Rights.

When a patentee pursues any person, and is opposed, he generally makes a strong appeal to the persecutions endured by such men as Evans, Fulton, &c., and sets himself up alongside of them as a martyr to the spirit of the age. But at the present day, such men act generally as did the persecutors of Fulton, &c., and endeavor to destroy the character and injure the rights of other inventors. Who can honestly deny that Fulton made a great improvement, in adopting and skillfully applying side wheels to steam navigation? The old first patent of Jonathan Hulls, dated 1736, for the application of steam to navigation, was a prior invention to either the plans of Rumsey Fitch, Stevens, or Fulton,—our American inventors,—but it was an inefficient although not impracticable plan, and yet there are men who entertain opinions, and patentees who are supported in them by courts, that any prior invention in a certain line subordinates all rights of subsequent inventors to their own inventions in the same line, although the inventions are quite different. Some patentees act on the principle that the first improver alone has rights, and all others must be subject to them. Woodworth was only an improver, and yet the assignees of his patent have acted and brought actions against subsequent improvers, thus showing that they, the assignees, have done what they would blame Bentham for doing, had Bentham been an American and owned a patent right upon the principle claimed by some for inventions, viz., the same right as in private property. I hold to the doctrine that every patentee has a certain right to his improvement, and if it is not similar to the improvement claimed by another patentee, he alone has a right to use it. The question of infringement or non-infringement should always be decided by a Jury. Can a judge know as much about mechanical combinations and principles as a jury selected to hear and decide upon the testimony of experts? It would be a most extraordinary thing if he did, for out of twelve American jurymen there are always more than one practically acquainted with the subject in litigation.

It has occurred more than once, that three and four persons have made applications about the same time for patents for a like invention. Two years ago a case of this kind was mentioned in the Commissioner of Patents' Report; the one who proved himself to have first invented the improvement received the patent, and, by law, he was entitled to it, although he was the first only by a few weeks. Each applicant was a *bona fide* improver, and by *natural law*, had a perfect right to make, use, and sell his own invention. The patent law stopped them from using their own inventions. Now this appears hard; perhaps the one who was only a few days behind the fortunate patentee, expended the most time, labor, and money in maturing his invention. Many cases of this kind have occurred, and so will many more. One inventor patentee should, therefore, have a merciful spirit towards a brother inventor, when he is an honest one. There are patent pirates, however, men who, with money, care not for the rights of any patentee, but would violate them with a light conscience, were it not for fear of the law. There are some men, too, who laugh at patents (but these men are becoming less plenty in our midst), and think they are not much protection after all. Such men should be made to feel the lash of the law; and I must say that I have known a number of such characters, but not one who did not suffer for the same by a just Providence, in some part of his life. In forming an opinion on the rights of two inventors, and the rights of a patentee and a non-inventor, no general rule can be followed; every single case must be considered on its own merits; and every one should be thus considered so as to render justice to each party. JUNIUS REDIVIVUS.

Fish for Food.

The April number of Hunt's Merchant's Magazine contains an excellent article on the "Fisheries of the United States," from which we select the following extract, on the use of fish for food:—

More fish must be eaten in our own country. We are growing fast, and with the rapid multiplication of mouths, additional substance will be needed to fill them. More fish should be called for, by the new mouths, as well as more beef, corn, and potatoes. But apart from the prospect of increased numbers, the market at home is not as large, with the present population and present circumstances, as it should be. The class to which we will allude are laborers in our cities and towns. These people are great consumers of meat, principally beef, and generally fancy that such substantial food is necessary to sustain men at their hard labor. But the idea is fallacious. Continual use of stimulating food is injurious to the system, and especially in the summer season, when meat is, in any state, not particularly wholesome, and when animals are known to be peculiarly liable to humor and disease. It is not to be wondered at that where flesh is a considerable article of food, at this season, those malignant diseases, called summer complaints, should be especially prevalent.—Light food is required in warm weather, and if men do not in that season force themselves to the use of stimulating viands, they will easily adapt themselves to light substances. But it is certain their health will be better at all seasons by varying their diet, substituting partially a weaker food for the uniformly strong to which they are now so devoted. And by usage, nature will be just as well satisfied in this way as the other. A great number of laboring men, of course, will deny the correctness of our argument, but there is a class, and a large class too, who cannot fail to acknowledge its validity. We refer to the adopted citizens, natives of Ireland, England, France, Germany, &c., men who are now among the most inveterate beef-eaters of the country, but who, in the old countries, were necessitated to a much weaker diet; and who can remember that when meat was a rarity to them, they were just as well able as now, provided they have other food, to sustain hard labor. There are other reasons to recommend the course we propose; that is a vicious taste which continually craves one kind of food. Taste is only properly cultivated by the use of a variety of kinds, and the pleasure arising from a taste thus exercised is much greater than that resulting from one perpetual stimulus. The change is again recommended by economy. Meat is already a dear article of food, and with the present rate of increase in population, and a continuance of the present beef-consuming rage, the cost must be more and more enhanced; the certain tendency of this circumstance is a continual depression of the working population, of which they must be as sensible as any. The remedy, of course, is in that substitution, partial or entire, which must eventually happen of sheer necessity, if choice is delayed, of some other food. We hope, with the spread of intelligence, so rapidly increasing, to see our mechanics, artisans, and laborers generally, correcting the abuses in their modes of living which they have so long been subject to, and advice on which they have so long disregarded. In the case of their food, we would recommend to them all the use of fish in lieu of at least half of their meat. Good qualities of dried or pickled fish, properly prepared, with the accompaniments of the ordinary dinner vegetables, will not, we venture to say, be long liable to the charge of unsavoriness, or deficiency of nutritive power. For breakfast, too, a broiled fish is at any time better adapted than a beef-steak, however tender, and however pressing the invitations it conveys through the olfactories; and for tea, a stripped dried pollock is in all respects preferable to the daintiest bits of smoked-beef.

[While our mackerel stands out as an unrivalled fish, it has always appeared to us, that with the ingenuity of our Eastern people, they are far behind in the preparation of fish of various kinds for the market. Foreign sardines sell for 50 cents per box by retail, and any working man could eat a whole box full with but little trouble; yet a great quantity of them are used by our wealthy classes because they are so well prepared. When have we prepared herring like the Dutch, or haddocks like those from from the Shetland Isles. A beefsteak is poor stuff in comparison with one of those haddocks for breakfast. Our fishermen should pay more attention to the preparation of various kinds of fish.

Steam Applied to Organs.

We have thought more than once that it would be a great saving to Italian flesh, if five or six of our street organ grinders would club together, get a large organ, fix it in a carriage, and drive it with a small steam engine. Mr. David, a French gentleman in this city, proposes to apply the steam engine for operating church organs. In a recent lecture on the influence of music he said:—

"It is not in the destiny of industry that the products of the mind or of genius remain in a small number of hands. On the contrary, it will appear that the 'chefs d'œuvre' of mind and of genius can be within reach of the greater part of mankind, that is to say, within reach as well of the poor as of the rich. This is its mission; this is its philosophical purpose.

To attain this commendable purpose, I think I have discovered a contrivance for moving church organs without the aid of either an organist or bellows blower, but by means of a steam engine, which would be also available for other useful purposes; I apply my processes at once to the music of churches, and to the music of the drawing room.

The same steam engine which gives motion to the organ, heats the church, heats the primary schools, heats the minister's house, rings the bell which invites the parishioners to the divine service, as well as giving the alarm in case of fire. This system can be applied only in the churches which are built in the style of American churches. I speak of the churches which are constructed with high basements where are established the primary schools, and where the minister's house is connected with or contagious to the church. The architectural style used generally in Methodist churches is very convenient for the application of my system.

I intend to propose to the Ocean Steamer Companies a system of mechanical organs on board of their steamers. These organs would furnish during the whole voyage, the passengers who were victims of sea-sickness, or a prey to pain or melancholy, on account of eternal or momentary separation from a mother, wife, or bride, selected pieces of theatrical music for six days in the week, and on the Sabbath suitable music for religious services."

Mr. David is a philanthropist; music by steam power for the million, is a new idea, and we hope to see it carried out in its broadest extent. Mr. Bain took out a patent in England, a few years ago, for performing on instruments at a distance by electro-magnetism. A performer by his plan might set cosily in his parlor, and give music to a wondering congregation in Yorkminster Abbey. Mr. David's plan, however, is more diversified, and he may yet extend it to a steam choir—one which would bid defiance to the winds or the weather, in pitching the key note.

To Remove Incrustations in Steam Boilers

This a subject of great interest, especially for steamships, and for boilers which are supplied with what is termed "hard water." A great number of patents have been taken out in Europe, and in our own country, to remove and prevent incrustations. There seems to be some defect in all previous inventions, or why should new patents be taken out if the old ones were perfect in accomplishing the purpose intended? As this is an important subject, we like to present all the information we can upon it; knowing how many engineers and owners of steam engines are among our subscribers. The following is the specification of a patent recently granted to John Ashworth, of Bristol England, for which we are indebted to our worthy cotemporary, Newton's London Repertory of Inventions.

The improved method of preventing and removing incrustation, which constitutes this invention, is applicable to the boilers of stationary, locomotive, or marine steam engines, and to all other steam generators liable to internal incrustation. The improvement consists in the use of a compound for preventing the lime or any other substance which the water may contain in solution (when fresh water is employed), or the saline compound such as sulphite of magnesia, chloride of sodium, &c., (in marine boilers), from forming an insoluble incrustation and adhering to the interior of the boiler, and for loosening and removing such incrustation when already formed.

The ingredients used in the preparation of the compound or mixture are coal-tar, linseed-water, plumbago or black-lead, and Castile soap. The compound is prepared by taking 33 gallons of coal tar, 21 gallons of linseed-water (prepared by boiling in water 14 lbs. of linseed, and straining or removing the seeds and other extraneous matter), 5 lbs. of plumbago or black-lead, in a pulverized state, and 8 lbs. of Castile soap, and stirring the whole well together, so as to intimately combine the same, and produce a compound of creamy consistence. Although these are the ingredients and proportions which are preferred, yet they are capable of slight modification: for instance, common soft or brown soap may be substituted for the Castile soap; or the exact proportions may be slightly varied, without materially affecting the action of the compound. The mixture or compound is introduced into the water in the boiler (after blowing off the steam), through the man-hole or other suitable inlet, in the proportion of about one gallon, twice a week, for a thirty horse-power boiler;—the quantity being increased or diminished according to the capacity of the boiler, and the average amount of incrustating material contained by the water used therein. It is stated, that the effect of this compound upon a new boiler is to prevent any serious amount of incrustation upon the interior of the boiler; as the little deposit which occurs is of a thin, brittle, porous, and crumbling nature, and can bereadily removed from the bottom of the boiler (on to which it falls) by sweeping or otherwise. In old incrusted boilers, the action of the compound upon the incrustation will, in a short time, loosen and remove the same.

The food necessary to sustain animal life has to perform, among other functions, that of developing, by its combustion in the lungs, a certain quantity of heat. The colder the surrounding atmosphere, the more is expended for that purpose.

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(For the Scientific American.)

Lignum Vitæ Journal Boxes.

In last week's Scientific American I perused an article from one of your correspondents, on the subject of wooden boxes for machinery, in which he states that he uses fustic for the purpose, which I have no doubt is good, as he speaks from experience, but I would beg leave to inform him that I use lignum vitæ, and prefer that to any metal or other material that I have ever heard of. In the first place it contains more gum, which is of an oily nature in itself, and when in operation the machinery requires much less oil than does metal. About nine years ago I fitted up a circular saw for light work. the mandril running upon steel centres; in the course of a few months they became entirely useless, having worn so much that I threw the whole concern aside, built me a new steel mandril mounted in lignum vitæ, and when I last saw the machine, about a year ago, it was in as good order to all appearance, as the day I made it, and has never required the slightest repair, although in constant use. I have lately fitted up a steam cabinet factory in this city, and have used wood entirely for all my journals; although it has been running about nine months I have not even had occasion to tighten up once. The manner in which I construct them may possibly be new to some of your readers. In the first place I turn the ends of my shaft in the form of a step, then select my wood of as even grain and quality as possible; turn the outside to any size you may think will be strong enough, to fit into a hole bored with a centre bit, then turn a recess in the end of the plug, to fit the step of the shaft, about 3-8 of an inch deep, according to the weight, and at the bottom of the recess make deeper, so as to form a cavity to contain oil; one plug is stationary, about 1 or 1½ inches long, driven solid into the timber or bearer; the other end about 3 or 4 inches long, to slide through the hole easy, but fit; now, all being ready, insert one end of the shaft in the stationary plug, and slide up the other, and key it fast, and the shaft is hung. Should it ever require repairing or re-centering, the expense would be a mere trifle. With the experience I have had, I am perfectly satisfied of its superior merits, as an anti-friction substance for machinery. J. P.

Maysville, Ky., March 12.

Liquors used in the United States.

Messrs. Editors—In an article headed "Liquors made in the United States," published in your paper of this date (March 27th), you set down the number of gallons of beer at 1,177,924; which I consider as altogether too small, to say nothing of the rum and whisky. If that is all the Census Report gives, then I think the Census requires revision, for Vassar's brewery at Poughkeepsie, alone, turns out 600,000 barrels of ale per annum, which, multiplied by 30, make the number of gallons 1,800,000! When we consider that there are many other breweries in this State, the Census Report cannot be relied on if it gives only 1,177,924 gallons as the entire malt product of the whole Union. What do you say?

A. Hoss.

Fire Engine Performances.

Messrs. Editors—I send you some statements of engine playing, which may not be uninteresting to you:—"Nameang" engine of New London, Ct., drew 20,000 gallons of water from a cistern in 67 minutes; "Augusta" engine, of Augusta, Ga., weighing 2,800 pounds, and manned by 36 men, played an inch stream 198 feet; and an inch and a quarter stream, 180 feet; this was the first time the engine had ever been tried, and it was worked by a company unused to that style of engine; under the circumstances I consider it equal to any horizontal playing that has come to my notice. For playing under any circumstances, I think the "Gaspee," of this city, has exceeded any engine which has ever been built. I have given you, in a previous letter, a statement of her playing from a pipe, and I now add another item, which will give you an idea of her capacity:—With 20 men at the brakes, she drew upwards of 11,000 gallons of water from a cellar, in twenty-five minutes, equal to 26,000 gallons in an hour. From personal knowledge of this engine, I think 20 men could work it at that rate, with as little fatigue as at most any other labor. The above engines were built by Mr. Wm. Jeffers, of Pawtuck, R. I. W. S. I.

Accidents On Railroads.

Seeing so many accounts of collisions and accidents on railroads, and many of them occurring through inattention to the Time Table, a plan has suggested itself to my mind, which, I think, would obviate much of the carelessness and recklessness shown in many of them. It is this:—to have some paper selected, say the Scientific American, or other paper of a like character, in which should be published the names of all the conductors employed on the various roads in the country, and each superintendent to keep such a list, then make discharge a penalty for want of attention or recklessness, and let every such discharge be published; also, to have a rule adopted among the superintendents, that no such discharged conductor shall be employed on any road. This, I believe, would operate as a check upon one of the causes of so many accidents, resulting in the loss of life and property, to a great extent. H. Lill.

(For the Scientific American.)

Cultivation of the Olive.

The Olive has been, and is now, cultivated to some extent in Georgia and Florida. Olives have been grown in St. Augustine, Fla., for a long time, from which the finest oil has been made. The trees are large and luxuriant, and produce fine berries.

The late Mr. Cowper, of St. Simon's Island, on the coast of Georgia, cultivated the olive with much success, and produced oil equal to the best imported article. The greatest hindrance has been the long time it took for trees to bear. If the new variety, recently introduced into Spain, Portugal, and France, could be successfully grown here, of which I have no doubt, we have one of the finest regions in the world for them. Our sea islands, from Charleston, S. C., to the St. John's River, are admirably adapted, in soil and temperature, as well as a large strip along the seaboard. A large portion of Florida could be brought into requisition, and oil made that has some of the peculiarities of the olive in it. It would diversify labor now bestowed upon the idol of the South—a cotton bale; which idol is as much interwoven into every thought and feeling, as the household gods of the heathen; cotton is our all! All of our hopes and fears are based upon cotton, and cotton rules this nation—the North as well as the South bow down to this idol. Every thing else is sacrificed to make incense for it, and what is the consequence? Over-producing has brought low prices, and utter ruin to many of its devotees. We hear the cry of money is scarce, and why? Because we send away all we make, for the self-same articles we could produce at home. When will the South see her folly? I fear not in this generation, for all seem agreed "to walk in the steps of their illustrious predecessors." H.

Savannah, Ga.

To Prevent Teeth from Bleeding.

Dissolve alum in alcohol; saturate cotton or lint, which is better, and pack the cavity from which the tooth has been extracted, and bleeding will cease instantly. The packing may be retained for a day or two without becoming offensive, which is not the case when the alum is dissolved in water. During a practice of eight years, it has never failed. In one case many fears were expressed, before trial, on account of former failures of many styptics. M. C. Heald, Dentist.

[For the Scientific American.]

Transporting Timber.

I perceive that your correspondent, Charles S. Watts, of Boston, does not understand the mode in which Mr. Cochran transports lumber. Had he known the practice of lumbering in our mountainous country, he need not have referred to history to show that lumber had been conveyed down steep mountains by means of artificial slides. For I presume there is scarcely a town on the range of the Green Mountains in which there are not slides of some kind for "running logs," either constructed of rough poles, timber, plank, or otherwise, according to the advantages of the situations or the enterprise and capital of the proprietor. But in all slides where the timber is propelled by its own gravity, there are several things which are indispensable, viz., a very great descent, a perfect straight line, and of uniform grade. None of which are essential in the trough constructed by Mr. Cochran, it having a variety of different grades and curves, conforming to the general shape of the country through which it passes. In the great Switzerland slide, there was a descent of several thousand feet. In Mr. Cochran's, only five or six hundred, and it would be effectual if there were but fifty feet, or if extended to your city. It is a good, feasible, and practicable mode of conveying lumber, fuel, or logs of any dimensions, and may be adopted with perfect success in every forest where there is a stream of water flowing from it, which is nearly always the case. I believe it is one of the great improvements of the age, and will be of untold worth to the lumbering interests of our country. And whether or no it is new I am not inclined to endorse or inculcate the opinions of Mr. Watts, that, in this age, there is "nothing new under the sun." M. M. M.

East Dorset, Vt.

Accidents from Fire-Arms---Safety Locks.

The following is part of a letter from T. N. Jones, of London, N. H., who, after adducing many accidents from the use of fire-arms (and one to himself), which have been increasing since percussion locks came into such general use, says, "I have invented a self-acting lock, and any lock of common construction can be changed to a reliable safety lock at no expense, and by a few minutes' labor by a common artisan, or the sportsman himself. I have proved it to my own satisfaction, and it has been pronounced an excellent safe-guard by others, among whom are gun manufacturers. I keep it no secret, and cheerfully submit it, with your leave, Messrs. Editors, to your numerous readers. Take out the tumbler of the lock and file in it a third ketch, below the half-cock catch, so that when the dog is set on it, it will raise the hammer about an eighth of an inch from the cap. By this arrangement the cap is prevented from falling or being brushed from the nipple, and all pressure from the hammer is taken off. Load and cap your piece in the usual way; drop your hammer down until the dog enters the safety catch; when you wish to discharge your piece bring it to full cock and pull trigger. The dog will then go by the third or safety notch the same as it goes by the second or half cock, and strike with its usual force on the cap. The value of the arrangement is this: your gun cannot be exploded in any of the usual accidental ways. If it falls, no explosion can take place, as the cap is guarded from all concussion. If a twig pulls back the hammer and lets it go, the safety catch is sure to bring it up; in fact, in no way can the piece be discharged but by bringing it to full cock and pulling on the trigger; for when the trigger is not pressed, the safety catch invariably arrests the further descent of the hammer. With such an apparatus on my detonator, I feel perfectly safe in my excursions for game, be it "duck or plover;" I go alone, generally, my setter—knowing dog!—excepted, thinking it wise to eschew the company of blundering companions of the biped species. Very truly yours and your readers, T. N. Jones."

Selection of a Carpet.

The walls being properly papered, the next thing is to consider the pattern of the carpet. In this also the rule must be followed, of selecting small patterns for small rooms. There is economy in this, as well as taste, because small-patterned carpets are generally found the most durable. As a rule, a formal geometrical pattern is best for a carpet; it should be something which does not appear unnatural to tread upon. It is a mistake to put flowers, trees, or figures of birds or animals, into a carpet, for we do not walk on such things; far other are their purposes and uses. Sometimes a carpet is made to represent a picture or landscape, which is also a mistake, for it offends our notions of propriety to see such objects spread on a floor. In the formal pattern, all these defects are avoided; it is not unusual to walk upon ornamental pavements or floors, and we are not displeased at seeing varieties of similar ornaments reproduced in a carpet. Those persons who have seen the House of Lords, will remember that the pattern of the carpet is nothing more than a small amber-colored star, on a deep blue ground, which, simple as it appears, harmonizes admirably with the superb decorations of the spacious edifice.

Another reason why a small pattern should be chosen is, that it suits best with the furniture of a room. The furniture must of course cover some portions of the carpet, so that if the pattern be large, there is so much confusion between what is seen and what is hidden, that a very disagreeable effect is produced. With a small pattern, on the contrary, the concealing of a portion by the furniture does not spoil the effect of that which remains uncovered. In the general suitability the Turkey carpet is the best; it is adapted for almost any style of furniture, and no one ever gets tired of it, owing to the perfect naturalness and harmony of the pattern. Let it be remembered, that neither on the wall nor on the floor should there be any one strong predominating color, which injures the effect of everything else in the room. As a rule, the color of the carpet should be darker than that of the walls; very light patterns are most suitable for bedrooms.

[The above we select from an exchange, and it, no doubt, took it from a foreign paper. It makes no matter where it originated, it is good, and it would be well if the advice it contains were more often followed than it is; and it will accomplish the object for which we insert it, it it be the means of leading any one who reads it to adopt it. A short time ago we overheard a conversation on one of our steamboats between two gentlemen whom we supposed to be carpet merchants. They were discussing the merits of foreign and American carpets; and they highly extolled some American patterns for their beauty and cheapness; they believed them to be superior in looks to the English carpets, "but then," says one, "the colors, they do not stand like the English." This required no proof to convince the other, it was admitted to be a fact by free mutual consent. It is our opinion that there is a foolish public prejudice against American colors. We cannot see how there can be the least difference in the colors of the carpets made in England and those in the United States. They are dyed with the same dyes and by the same processes, and in many cases by the same men. Some people think the water and climate are the causes of the difference; this is all nonsense—we believe there is no difference.

Researches in Terrestrial Physics.

Prof. A. Henessy has brought the higher mathematics to bear upon various questions connected with the changes in a globe cooling from fusion. In the course of his paper, the author shows that the solidification of the earth could not have begun at the centre, but must have gone on from the surface, adding successive layers of cooled rocks. He infers that the least possible thickness of the crust is 18 miles, and the greatest possible thickness 600 miles. He infers also that a considerable amount of friction and pressure must exist between the shell and fluid nucleus.

[Inferences are very excellent, but still we must hold them to be nothing more than inferences. If some person, commencing existence in a 1,000 feet deep Mexican mine, were, for the first time, to approach the surface of the earth, measuring the temperature as he ascended, he would undoubtedly infer that it would be freezing cold when he reached the surface. How surprised would he be to find it so much warmer than the place from whence he commenced his subterranean pilgrimage.

Hydraulic Cement Paint.

We have been informed that if hydraulic cement be mixed with oil, it forms a first-rate anti-combustible and excellent water-proof paint for the roofs of buildings, outhouse walls, &c. We know that if the cement is ground fine enough, it will make a good coarse paint, and so will sand if well mixed with good white lead. We prefer the latter, as a water-proof hard paint to any other, but the hydraulic cement paint is much better for its incombustible qualities. Our farmers should try this paint. They need not be very particular about the quality of the oil which they use.

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NEW INVENTIONS.

Improved Bush for Mill-Stones.

Cyrenus Pelham, of Binghampton, Broome Co., N. Y., has made an important improvement on mill-stones. The improvement consists in operating a series of keys by means of wedges, screw-rods, pinions, and a circular rim, cogged on its inner periphery; the circular rim meshes into pinions or screw-rods, which pass through nuts attached to arms connected to the wedges; by turning the rim the wedges are raised or lowered and operate on keys, which bear against the spindle of the runner (upper stone). As the wedges are raised, the keys bind tighter against the spindle, and the contrary when the wedges are lowered. If the spindle is out of plumb-line, either one of the wedges may be raised independently of the others, or it may be lowered by raising the circular rim and turning the pinion of its screw-rod. The spindle may thus be brought in line with very little trouble. Measures have been taken to secure a patent.

Painting Window Shades.

Samuel T. Fields, of Worcester, Mass. has invented a useful improvement in painting window blinds, sashes, and other articles. The invention consists in a hollow stationary cylinder, box, or casing provided inside with suitable means, by which the blind, sashes, or other articles to be painted may be held securely, and revolved. The blind is first dipped into a trough containing a sufficient quantity of paint to cover it, and then secured within the cylinder, and a rapid motion given to it. The effect of the motion is to throw off the superfluous paint, and leave a proper quantity evenly distributed over the surface of the article so treated. The whole of the paint is thus retained in the vessel. This is a most excellent improvement for the painting of blinds and other articles of a like nature. The present mode of painting blinds is by hand, a tedious and therefore expensive system; the improvement will enable one man to put as many blinds through his hands in one day as 20 painters by hand. Measures have been taken to secure a patent.

Improvement in Railroad Carriages.

We learn by the Sherbrooke Gazette, Canada East, that a Mr. W. S. Hunter, Jr., of that place, has invented an improvement to lessen the disastrous effects of collisions on railways. His plan is to have the body of the cars made independent of the truck, and to have rails on a platform on the truck, and the carriage placed upon them in such a manner as to allow them to play backwards and forwards about four feet at each end, where powerful springs are placed to retain the carriage. The platform receives the shock, and the springs prevent the cars being smashed. Mr. Hunter also proposes to do away with the platforms at the ends of cars, and place the doors at the sides, allowing no person to get in and out except at stations, and then to step out on fixed platforms.

None of these plans are feasible, in our opinion. How could the conductor pass from car to car to see that all is right, if side doors alone were used? The locking of car doors was tried in France, and 40 persons were burned up by such a miserable system, on one occasion. The best way of preventing railway collision injuries, is to prevent collisions —that's the point to look for the remedy.

Multiplying Gearing.

Messrs. Frank Dibben & Louis Bollman, of this city, have invented a new combination of mechanical devices, for getting up and giving velocity to wheels, from a rotary prime mover, which is one of the most ingenious inventions we have seen for a long time. The rotary motion is transmitted by means of the difference of proportion between two pairs of toothed wheels or their equivalents. One wheel of each pair has a common fixed axis, the other wheels gearing into them have a common axis capable of revolving round the fixed axis. By the difference of proportion between the two pairs of wheels, a revolution of one will give 100 revolutions to another, but this is not done by the difference of the teeth in the wheels, but the positions of their axes, and they might well be termed eccentric cog multiplying gearing.

Attaching Hubs to Axles.

Messrs. J. S. & S. J. Mowry, of Greenville, New London Co., Conn., have taken measures to secure a patent for an improved mode of securing hubs to axles by means of bolts passing longitudinally through the hub; said bolts have nuts on one end, and oblong heads on the other. At the back end of the hub, there is a collar having oblong slots through it; this collar encircles the axle, and a flanch on the axle prevents the hub being withdrawn.

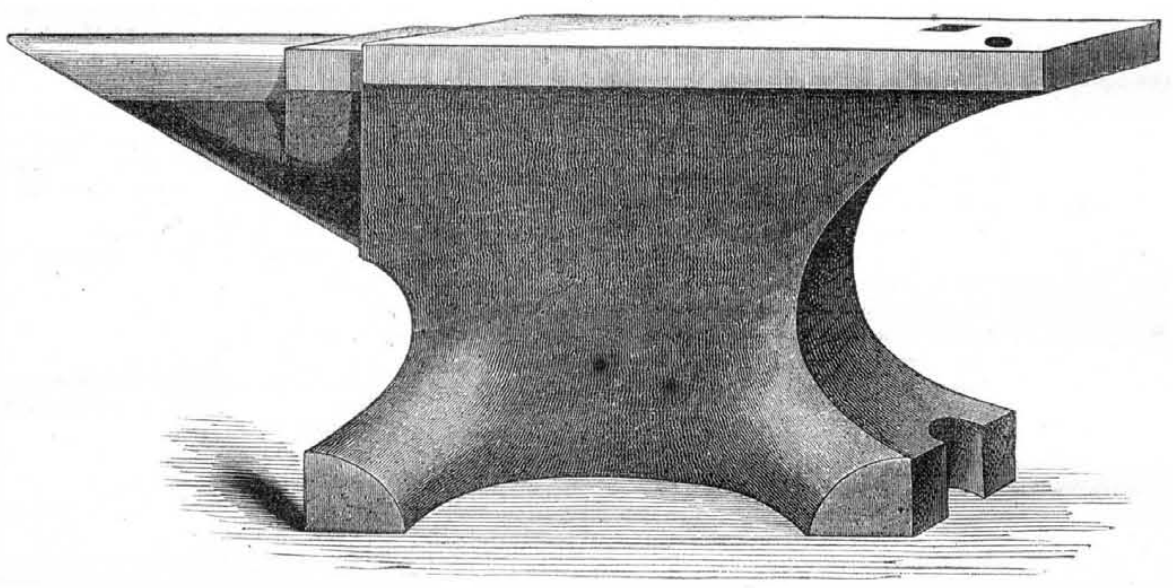
Improved Seed Planter.

D. Haldeman, of Morgantown, Monong'lia, Co., Va., has taken measures to secure a patent for an improved seed planter. He employs a roller encompassed by one or more tires, which can be adjusted to the roller at pleasure, to increase its diameter for planting the seeds at the required distance apart. The seed is distributed by cams attached to the roller spoken of, (which acts like a wheel); these cams operate slides that allow the grain to pass through a plate into a tube which conveys it to the shoe and then into the furrow.

Improved Ox Yoke.

Ezra Hough, of Johnsville, N. Y., has taken measures to secure a patent for an improvement in slide yokes for oxen, which consists in placing the two bows of the yoke in slides, and connecting the slides by means of chains passing over pulleys. The slides fit in mortices in the yoke, and by connecting them, neither of the bows can be moved laterally without communicating a corresponding opposite motion to the other. By this arrangement both the bows are always equi-distant apart from the centre of the yoke, and neither of the oxen can obtain an advantage.

IMPROVEMENT IN ANVILS AND VISES.---Fig. 1.



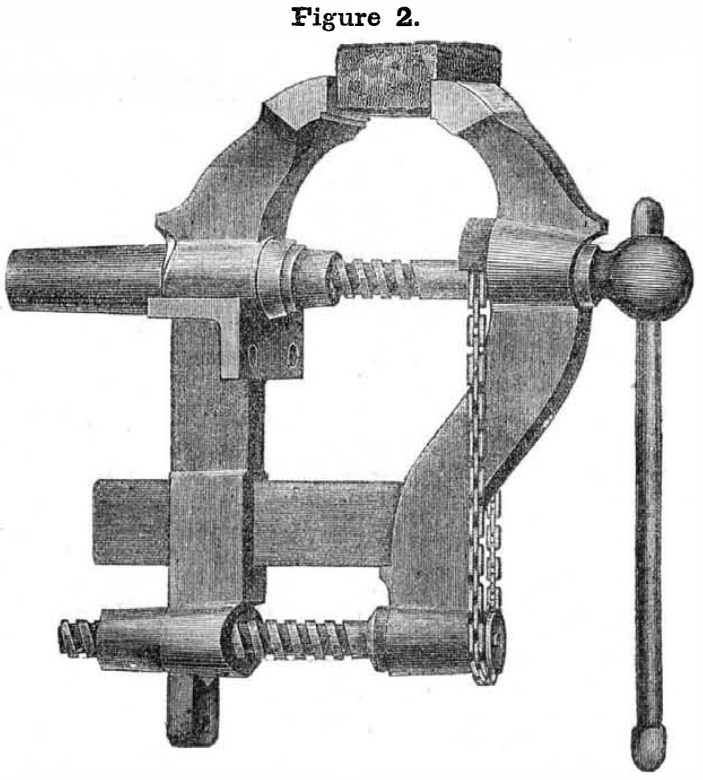
We here give representations of a new invention, in the use of cast-iron, by which cast-steel is perfectly welded on to the surface and horns of anvils and the jaws of vises.

This very useful invention was patented some time ago, by Mark Fisher, then resident in Newport, Maine, and with careful patience he has steadily devoted his energies to its successful application to these tools, with the design to apply it to other uses in the mechanic arts. He has, until now, given little publicity to his invention, as he wished to have it first subjected to the most severe tests of its utility and durability, by the use of the tools so welded, for a sufficient length of time, and for a sufficient varieties of uses, to be able to demonstrate effectually the entire success of the invention.

The above cut of the American Eagle Anvils, introduces to the notice of our readers an improvement in the manufacture of this staple tool, and we are pleased that American skill has, in this instance, so entirely surpasses the inventive talent of other nations. The foreign anvils have been invariably made of wrought-iron; the faces only have been steeled, and owing to the difficulties of welding and tempering steel on so large a mass of metal, it is applied to their faces in two or more thin pieces or strips. By frequent use, one or more of them often proves unsound or of bad temper, and in this country, the repairing is so expensive, as to render such a failure equivalent to a total loss of the anvil. Further, by continuous use, the fibre of the wrought-iron of the foreign anvils yields, and the face of the anvil "settles" (in the language of the smith), thus rendering its surface uneven and unfit for use.

The faces of the American anvils are made

Figure 2.



of a single piece of very thick cast-steel, indissolubly welded and perfectly tempered:— the increased thickness of the steel and its superior quality, supported by the unyielding fibre of the cast-iron below, causes the faces to remain permanently durable and true.

The American anvils, moreover, have their horns steeled, and the point of the horn is solid steel, and for the above reasons these anvils, in the opinion of the best judges in this country, founded on severe tests by themselves, cannot fail to supersede all other anvils entirely, as soon as they shall be brought to the notice of consumers. They are made of all sizes and shapes, and are warranted by the manufacturers to prove fully adequate to perform the work of the best foreign anvils of the same sizes.

Fig. 2 is an engraving of a simple and effective smith's vise with a parallel motion of the jaws given by the action of two screws, connected by the endless chain and guided by the sliding bar represented.

These vises are like the above described anvils, made of the best quality of American cast-iron, with the best steel indissolubly welded on to the bite of the jaws; the middle links of the rivets and chains are case-hardened, and the screw-pins, lever, and chain made of best refined iron. This principle of vise was patented by Mr. Matthews, of Worcester, Mass., and since assigned by him to Messrs. Fisher & Norris, who are now engaged in their manufacture, and have given increased value to the original invention, by improving the form and proportions, and employing their own patent welding process to the jaws.

It is not necessary, perhaps, to call attention to the well known advantage of vises with parallel jaws: the testimony of a sufficient number of most competent practical mechanics has been given to the very decided superiority of this invention over all other descriptions of American and foreign vises, and they have fully tested their strength and durability in the performance of any and every description of work which could be performed by relative sizes of vises made by other makers in Europe and America.

This staple tool is, like the anvil above referred to, a triumph of American skill over the obstacles and defects of the vises hitherto employed by our mechanics, and we feel gratified to know that, in future, we shall not only be able to supply ourselves with these primary and important tools, but that we shall be able to obtain a much better article, and, by this invention, have contributed something to the advancement of the mechanic arts at home and abroad.

The manufacturer's wholesale agents in the Atlantic cities are Messrs. Geo. H. Gray and & Co., No. 87 Milk st., Boston; Clark, Wilson & Co., No. 13 Cliff st., New York; Curtis & Hand, No. 41 Commerce st., Philadelphia; Hiss & Cole, Baltimore, and the anvils or vises may be had by consumers of all the iron and steel dealers and hardware stores in the United States.

Bending of Iron Pipes..

Pipes of iron will bend "very kindly," and without collapsing, if they be filled, at the part to be bent, with melted lead, and bent immediately the lead has ceased to be fluid; when the wished for curvature is obtained, the lead is easily melted out of the pipe.— [Builder.

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Scientific American

NEW-YORK, APRIL 10, 1852.

The Great India Rubber Case.

Every body has heard of the "Great India Rubber Case,"—the contest between Goodyear versus Day, for infringement of a patent for manufacturing vulcanized india rubber goods. The contest has been well named, for assuredly it is the toughest and most elastic case that has ever occupied our United States Courts,—it is *india rubber all over*. For years, every month or so, the newspapers have given evidence of the tough elastic nature of this india rubber war. To-day a long communication would appear in one paper, denouncing Day as an infringer and patent pirate; and to-morrow a long article would appear, denouncing Goodyear. From month to month, and from year to year, the war has been kept up: and although it has been bloodless, it has been anything but bootless; this we judge from the perambulations of the contestants, the different fields on which they have fought from Jersey to Massachusetts, and from thence to Jersey back again.

During the last week of March, this famous case came on again; it had another tilt in the U. S. Court at Trenton, N. J. The most eminent counsel in our land were employed: there was the great Webster—Secretary of State.—and James T. Brady, of New York, for the plaintiff; there was Rufus Choate, of Boston, and Messrs. Cutting and Gifford, of this city—eminent counsellers—for the defence. We suppose that this single contest cost the parties some thousands of dollars, thus showing, as we have always contended, that the law part of conducting patent cases was the most expensive, and more than any part of our patent system, requires a reform—like an old chancery evil, the pruning knife should be applied to it. If such an array of eminent counsel had been brought together for the purpose of disposing of this case finally, a great object would have been accomplished; but no such a thing as that was involved; they were brought there and paid to give their eloquent opinions, for the benefit of their clients, to the presiding judge—to instruct him in what is right and what is wrong (or what is *practice*) in such cases. He considers all the testimony and the opinions given, and pronounces his decision—either granting or denying the plaintiff's petition. The case in question was one in equity, which is different from one at common law. The applicant, or his assignees, made application for an injunction to restrain H. H. Day from making certain kinds of india rubber goods, which the plaintiff claims to be an infringement of his patent. The defendant denies that he is using the invention of the plaintiff; he asserts that the patent is illegal, that it was wrongfully granted, and it claims that which Goodyear did not invent, and is not his property. He demands a trial at common law, to test the validity of the patent, or calls upon the court to dismiss the case. The United States Courts have the power of granting injunctions, permanent, or until the question is decided at common law; a trial at which, is in their power to order or not. A trial at common law is a jury trial, where all is decided upon adduced testimony, and where witnesses can be examined publicly. In cases of *equity*, all depends on the Court—it is despotic for the time being. The judge may make a wrong decision, as many have done, and some one of the parties be deeply injured. Mr. Curtis, in his work on patents, contends that equity affords remedies not to be found in common law. We do not believe it; the evils of our equity system—its inconclusive expensiveness—were never more apparent to us than in this case. The Court has not yet, we believe, made its decision; what it will be, we cannot tell, but the defendants anticipate a victory. Can there not be some cheap way of settling patent cases devised, for the benefit of unmonied inventors? No poor inventor could have employed such eminent counsel, and it is therefore quite evident to us that a poor man, in equity, above all other trials, is placed at a great disadvantage, if his opponent be wealthy. So far as the final issue of this "great india rubber case" is concerned, it appears, after all the great speeches which have been made on it, as if it would stand to be stretched over as great an extent of time and space, as it has already been.

Progress of Invention and Civilization.

In an article which appeared in a recent number of the Ohio Farmer, on the origin and progress of invention, it is assumed, as a fact, that man commenced life as a savage. The first report of Commissioner Ewbank takes the same ground. It states that man commenced existence as an Orson—a wild man of the woods. There can be no doubt but the progress of discovery has been onward for two hundred years at least, but we question any statement which asserts that it has always been onward. We do not hold to the doctrine, either, of man commencing existence as a savage. The savage state is an unnatural one, the disruptive effect of some national calamity. Were those mere savages, who, three thousand years ago, built their observatories on the plains of Shinar? The art of draining streets, of making glass, &c., were known to the ancients, lost, and re-discovered by the moderns. Where is the civilization that once belonged to Greece. The Greek churchmen of the present day are very ignorant in comparison with the priests who belonged to that church ten centuries ago. What do we know of the civilization of those who built Thebes, or the wonderful ruined cities of Asia Minor, and America. When those cities teemed with myriads of inhabitants, the sun shone upon a more civilized race of men than those, their descendants, who now pitch their tents amid crumbling palaces. Because our forefathers were savages two thousand years ago, that is no evidence nor proof that man commenced existence as a savage. Far in the past, before our Scandinavian and Celtic forefathers commenced their processions to the western isles of Europe, their forefathers dwelt in walled cities, and were acquainted with many arts. The Britons who dwelt in caves and fed upon acorns were descendants of men who once dwelt in marble halls and worshipped in gold covered temples.

Parker's Water Wheel.

We have received a letter from Messrs. Geo. F. Havens and Asa T. Barron, agents of Z. Parker, in relation to the communication of C. Goodnow, which appeared on page 211 of the Scientific American. They have sent us the *circular* spoken of in that communication, which is entirely different from what was represented. The letter states, however, that the part of Godnow's communication relating to four agents of Parker being in Vermont, and that they were going into New Hampshire to collect taxes in the Spring, is true, but deny the statement flatly, as asserted, that they had collected $2,000 in one county. Their method of doing business is described as follows: "They call upon all persons using wheels, and examine them, when, if they find a wheel which they claim to be an infringement, they fill out and leave with the person a notice, asking him to meet them at a certain place on a certain time, the place and time being selected so as to have all the infringants in one county meet at once; the patent, models, and accounts of the trials are produced and lawyers and millwrights are there to give the matter a thorough investigation and full discussion, and then to act as they please." The majority of those noticed have met them on settlement days, and come to terms with the agents. "No man has ever been sued on four days' notice, nor has any been threatened to be sued in that time;" every person has been allowed an opportunity to investigate. The letter states that "every one who has refused to pay has been sued, except poor persons, when it would distress their families to take their money," and, says the letter, "we have invariably given *them* deeds, as many a poor man would testify if called upon." The letter also states that although the laws of New York do not allow them to attach property, some of the New England States do, and they attach either the property or persons of infringers in those States.

This letter tells a totally different story from the one we published, but how comes it to pass, that we have received almost the same information as that of Goodnow from other persons? The generosity displayed in giving deeds to poor persons infringing Parker's patent, exhibits a christian spirit, worthy of the highest praise. The quotations in this article are taken from the letter, which is too long for publication; the whole that is essential to the matter at issue, however, is presented.

Critic.

The April number of "Appleton's Magazine" contains an envious, ignorant, and scurrilous criticism on the "Scientific American," signed C. D. We say envious and ignorant, because we think we know the man, therefore we care nothing for it; but we would remark, that the Editor who is the willing instrument to publish such communications, does not understand the common courtesies which exists between cotemporary Editors. No such remarks about him or his lucubrations would ever, under any circumstances, find place in our columns, and especially from a correspondent. If he has made any capital out of it, he is welcome to all the *honors* gained in the estimation of *true* gentlemen,—we do not covet them. Lest some of our readers should misunderstand the point, we will add that the criticism is upon an article taken from and credited to the Pawtucket Advertiser, on page 146, in which is a typographical error, viz., 2—2 instead of 2+2: and upon the opinions expressed respecting steam boiler explosions, on page 157. A Florida correspondent informed us that he raised the steam in a model boiler to a high pressure, applied a torch to the safety-valve, when a terrific explosion took place. We stated that when water was decomposed in a boiler, hydrogen escaped, and if this were mixed with 8 parts of the atmosphere, and a torch were applied, an explosion would result, which, "in all likelihood, was the cause of the explosion of the model boler." C.D. "could not see how the oxygen could get in the boiler." Very likely,—and more than probable he could not.

The opinion we gave about the cause of the explosion is a correct one, and we have experimental testimony on hand to prove that air does get into, and is oftentimes retained in steam boilers. But this would not enlighten a man whose hair would be likely to fall off, like Humphrey Dobbin's, before the point could be carried.

Riddle's Fair.

The company which has named itself the "Association for the Exhibition of Industry of all Nations," has published a card setting forth its objects and aims. The association has a charter for five years, its capital is $200,000 (divided into shares of $100 each), and it may be increased to $300,000. The charge for admission is to be 50 cents. The following are the names of the officers:—

Theodore Sedgwick, President; William Whetton, Sec'y. Directors—Mortimer Livingston, August Belmont, Alfred Pell, Francis W. Edmonds, Alexander Hamilton, Jr., Elbert J. Anderson, Johnston Livingston, John E. Develin, Charles A. Stetson, Philip Burrower, Henry C. Murphy. Superintending Architect—Edmund Hurry.

The card is a very long one, and has a kind of "a-good-time-coming tone in it." It sets out with declaring what a great amount of good was done by the London World's Fair which suggested this. It is to be a great affair, far greater than the London one, for the card states that while a portion of the London Building was occupied with things of but little interest, by a more careful selection of articles, and by a larger introduction of our own products, the interest of the exhibition will be increased. Those who wish to exhibit must send well finished articles—*carefully* selected. Our farmers, therefore, will find that their tools, which necessarily cannot be very finely finished, may not be accepted. There is one thing evident, the company is a joint stock one, and its ultimate object is a good profit on the money invested. The president, secretary, and directors are all honorable men, but not one of them, however distinguished in literature, law, financering, banking, and hotel management, has any character for science or mechanical knowledge. We have taken ground against this association because it is not national—it originated in the money making heart, the love of the almighty dollar. There is one exceedingly commendable object of action presented in the card, we will quote it entire:—

"The corporation is authorized by its charter to award prizes among the exhibitors: and in discharging this part of their duty the directors will, hereafter, invite the co-operation of the most eminent and capable of their fellow-citizens."

This policy carried out with discretion and impartiality, will cover a multitude of sins, and confer either honor or lasting disgrace upon the association. It is not stated when it will open. More than one of our London exhibitors—our mechanics, have told us they believe it will be a failure; they have formed their opinion from the way our department was managed in London.

Ericsson's Engine for Steamships.

It is stated on the authority of common report, that Messrs. Perine, Patterson & Stack, of Williamsburg, N. Y., are building a large steamship of 2,200 tons, for a company; she is to be fitted with Ericsson's Caloric Engine, illustrated on page 60 of this volume of the Scientific American. The engines are to occupy less space than our common boiler marine engines, and it is asserted that it will save 80 per cent. of fuel; she is for the Liverpool trade, and will be a fair test of the value of Capt. Ericsson's invention. We cannot see how it can at all operate so as to do the work it has been asserted it can do. We are of opinion that it will be a failure, a greater failure than the "Iron Witch." We should be glad to find out we were mistaken, for we hail every improvement as a benefit to the world, but at present we cannot see any point upon which to base a hope of its success; its first voyage will prove whether or not our views are good—right or wrong.

Camphene—Its Dangers.

A Mr. Ennis recently delivered a lecture in Newark, N. J., on the employment of camphene in common lamps. He stated that very unjust views were entertained respecting the dangers of camphene. The danger, he asserted, was not from explosions, but the overflowing of the fluid, and want of presence of mind in persons when an overflow took place. "If they would blow out the lamp at once no danger would happen." There can be no doubt but this is true, but the difficulty lies in providing a remedy. We could burn camphene for a hundred years and fear no danger, and so could every man, but then women, as a general thing, get easily frightened, and have not the care nor coolness of men in cases of danger. We advise persons who have children not to employ camphene, nor should it be used in any house except under the care of a man, or a discreet and careful woman.

Subscribers.

We are much obliged to our subscribers for the prompt manner in which they have come forward and renewed their subscriptions; also for the interest so many of them have exhibited in getting us new subscribers. No one will fail to get the value of his money. We are much obliged to our friends for the congratulations we have received respecting the Scientific American. It will be our duty to labor more arduously than ever, and to expend still more in providing useful and rare information for our readers, and maintaining the character of the Scientific American as "the best mechanical paper in the world."

The American Institute and Riddle's Fair.

We understand that the contemplated Riddle & Co.'s fair has put new life into the American Institute. The oldest officer moves with a more vigorous and elastic step now than was his wont some time ago. There is a sharpness and a determination in the managers which will be the means of getting up a great Fair at the Castle Garden this year. The Institute is determined to let itself be felt this time. This is the right spirit: there is pith and power in the memberhood of the Institute to do something creditable and honorable to the Republic; all that is wanted is to call it out.

The good people of Hartford, Ct., have held a meeting denouncing the political manœuvering to reward Dr. Morton for the ether discovery. They claim it for Dr. Wells.

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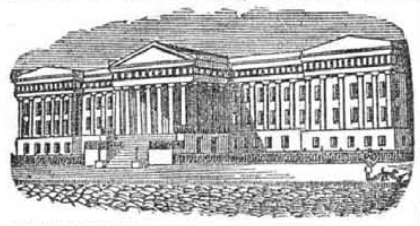

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 30, 1852

SAUSAGE STUFFERS—By T. W. Bailey, of Lewistown, Pa.: I claim the combination of the three cornered ovoid-shaped cylinder, with the curved spring scraper, operated in the manner and for the purpose set forth.

MILL FOR GRINDING ORES—By Wm. Ball, of Chicopee, Mass.: I claim the combination and arrangement of the two grinding or pulverizing wheels, one or two endless screws, and the troughs which such wheels and screws revolve in, all made and applied so as to operate together, in such manner as to raise the ore up and crush it between the two wheels, and not only return or move the heavier or too weighty particles, towards or back to the wheels, but allow the lighter ones, or sufficiently reduced particles, to flow out of the machine, as described.

EXCAVATING MACHINES—By Charles Bishop, of Norwalk, O.: I do not claim inclining the cutter cylinder; neither do I claim placing the horses within or upon ditching machines, for the purpose of working them: but I claim constructing the inclined wheel, or cutting cylinder that it is made also to serve the purpose of horse-walk, by which means the power of the horse is applied directly to the cylinder itself, without the intervention of other mechanism, substantially as described.

TRUSSES—By F. M. Butler, of New York City: I claim the application of trusses and supporters of the guard spring pad, as described.

MACHINERY FOR SHAVING HEADS OF SCREW BLANKS, RIVETS, etc.—By John Crum, of Ramapo, N. Y.: I claim the movable stop which determines the position of the screw blanks between the jaws, and then returns, to let said blanks fall through, substantially as specified, in combination with the vertical hollow spindle or mandrel, as specified.

And, finally, I claim the feeding tube which conducts the screw blank, &c., to the hollow spindle, substantially as specified, in combination with the cam on the cutter head, or its equivalent, for moving the said tube out of the way of the cutter, as described.

RAZOR STROPS—By John Demerit, of Montpelier, Vt.: I claim the mode of attaching the strop to the case, so that it will not be soiled by the faces of it coming in contact with the case, and so that it will revolve, as described, using for that purpose the aforesaid case, strop, bearing spring, and pivots, in combination.

DREDGING MACHINES—By James Hamilton, of New York City: patented in France Dec. 16, 1845: I do not limit myself to the means described, for raising and lowering the frame, nor to the shapes of the shovels or scoops, or the means of moving them, as other mechanical means, shapes, or arrangements may be used; neither do I limit myself in the number of the shovels or scoops, or the proportions of the parts

First, I claim the shovels or scoops, forming the bottoms of compartments in a proper frame, and moving at one end on a hinge, or similar contrivance—the other end being lowered to cause the scoop, as the frame is moved along, to collect the sand, mud, or other material operated on, and retain the same by suitable mechanical means, operating to lift the scoop and close the bottom, as described.

RICE HULLERS—By Peter McKinlay, of Charleston, S. C.: I claim the combination of the concave, fluted chambers, with the smooth curved, radial beaters, for hulling rice, as set forth.

SHOVEL PLOWS—By W. Fagett, of Stone Bridge, Va.: I claim the construction of the handles, and the principle or mode of shifting the same, as described, with their operation, the invention of the common shovel plow is of course disclaimed.

ELECTRIC WHALING APPARATUS—By Dr. Albert Sonnenburg & Philipp Rechten, of Bremen, Germany (assignors to Christian A. Hainaken, of the United States): We claim the application of electric galvanic current, conveyed by a conductor, to an instrument which is to be thrown into sperm and right whales, as well as other animals of the sea, in order to secure them.

[This invention has been proposed to us a number of times within five years; it can never be made to operate—never.—ED.]

GANG PLOWS.—By Harvey Killam & G. Valleau, of Scottsville, N.Y.: We claim mounting the tongue or pole upon the timbers, and uniting the same by an intermediate jointed connecting rod, to the horizontal coupling rod, which unites the front and rearward ends of the pivotted arms of the axles, whereby the direction or guiding of the gang of plows is regulated by the action of the team itself, in moving in any direction the attendant may require.

We also claim confining the tongue or pole between the horizontal plate and timber, by means of a fulcrum bolt, for the purpose of allowing the tongue or pole to vibrate or move right or left, with the direction of the team, whereby the required direction is given to the propelling and supporting wheels, and whereby the tongue or pole may be shifted or adjusted in its position, to accommodate two or three horses and yet maintain its central draft with the plows.

BEDSTEAD FASTENINGS—By Wm. Shaw, of Clarion, Pa: I claim the combined actions, or the combinations of the link and wedge, as described, for fastening bedsteads.

RAT TRAPS—By James Sheward, of Somerset, O.: I claim the manner of constructing a machine for the killing of animals and throwing their bodies from the trap, and self-setting the same, substantially as described.

APPARATUS FOR BORING ARTESIAN WELLS—By John Thomson, of Kensington, Pa.: I claim the spring or brace, as described, or its equivalent, with the twisted flat bar, or other device, turning systematically the boring instrument, whilst using a rope instead of rods, while sinking a bore-hole in the earth, in search of water or minerals.

SMOOTHING IRONS—By Nicholas Taliaferro, of Augusta, Ky., and Wm. D. Cummings, of Murphysville, Ky.: We claim the application, substantially as described, to a self-heating smoothing iron, or a tube or chamber, at the bottom of the fire box, provided with a registered mouth or inlet some distance above the bottom and at its lower portion, with distributing apertures communicating with the fire, whereby the draft is applied from beneath and equally at every part, and placed under the control of the operator, without permitting the escape of ashes or other refuse of combustion.

CANDLE WICKS—By C. A Wortendyke, of Godwinville, N. J.: I claim a candle wick manufactured as described.

RE-ISSUES.

POWDER-PROOF LOCK—By Wm. Hall, of Boston, Mass. Patented originally Aug. 1, 1848: I claim the combination of the handle, shank, and cam, one or more pins, etc., and their sustaining holes or apertures, in their application to the bolt and one or more tumblers, and as operated, substantially as specified, meaning to claim said combination, as composed of the afore described elements and their accessories.

And I also claim to combine with, or in combination with the bolt and tumblers, a contrivance for throwing or moving the bolt back and forth; another, or a key separate and distinct from such contrivance, and for the purpose of moving the tumblers into correct positions for the bolt to be moved, and which shall be perfectly stationary after it has so moved the tumblers, and a movable plate, or its equivalent, applied to the contrivance, by which the bolt is actuated and made entirely to cover the key, and prevent access to it when the bolt is put in motion—not meaning by the above to claim the separate combination of either of the above mentioned three parts, with the bolt and tumblers, but intending to limit my claim to the combination of all of them therewith, so as to operate in conjunction with them, essentially as specified.

SEED PLANTER—By M. J. Hunt, of Rising Sun, Md. Originally patented June 3, 1851: What I claim is, in combination with the slotted, sliding seed bar, the stationary lugs on the plate, and the concave on the cap, the whole being arranged and constructed as described.

I also claim the combination and arrangement of the double bolt, with its slotted arm, rock shaft, with its arms and pitman, for the double purpose of giving motion to the feeding apparatus, and also regulating the quantity of seed to be sown, when said pitman is operated by a long crank upon which it travels, as shown.

DESIGN.

COOKING STOVE—By S M. Carpenter, of Erie, Pa.

Tenacity of Life in Insects.

However useful insects may be in the general economy of nature, it is but too true that the farmers and gardeners often find them a pest, and with each returning summer the pages of agricultural journals abound with remedies, offensive and defensive, against the obnoxious invaders. In such cases, it becomes desirable to know what remedial means are the most efficacious, and we are glad to find that the question has been taken up by persons competent to discuss it. Among these, Dr. J. Davy, of England, has given the results of his enquiry in a paper, "On the Effects of certain Agents on Insects," which has just been published in the Transactions of the Entomological Society, and is well worth reproduction in a condensed form. The experiments were begun in the winter of 1850, the season, as will be remembered, being so mild that insects were readily met with. Their objects were three-fold—to test the effects of temperature, of gases, and of vapors. In the former, recourse was had to extremes of heat and cold. A bee placed in a temperature of 32° became at first more active, but the next morning was found torpid, as if dead; a register-thermometer showing that 25° had been the lowest temperature during the night. Transferred to a temperature of 52°, the bee revived in half an hour, and on the following day exhibited the same results under the same conditions. A fly which, on December 8, was lively on the wing, in a temperature of 52° in-doors, was disinclined to move at 40°; and still more so, stirring only when touched, at 33°, but did not become torpid, as in the case of the bee, even at 23°, signs of life being distinctly visible. Several trials, made with different species of flies all gave the same result—a remarkable power of sustaining life. The method adopted was to enclose the insects in a glass tube, and place them out of doors all night; and though the tube was frequently covered with frost, they soon revived in a warm temperature of a room. It is scarcely possible to estimate the degree of cold which insect life will bear without destruction, since many of these creatures survive the terrible winters of the arctic regions. Still, a knowledge of the effects of reduction of temperature will be valuable, as affording data by which to judge of the effects and probable duration of visitations of insects, and of the nature of the precautionary measures to be adopted. In an experiment of alternate temperature from 40° to 65°, tried for five days on a bee, the creature at last "ceased to give any sign of vitality."

The influence of heat appears to be much more rapid than that of cold; a fly exposed to a temperature of 120°, died in two or three minutes; and 113° proved fatal to another; while a third, placed in a temperature increased gradually to 96°, remained alive for more than an hour. Others bore from 80° to 90° for two hours; and in one instance, a fly survived from 86° to 100° for several hours, but became uneasy with a slight rise, and died at 105°. A bee, taken on March 15, from a temperature of 45°, was exposed to 80° without any apparent diminution of activity; at 90° it ceased to buzz; and at 96°, ceased altogether to move, and did not revive. Although these results are too few to enable us to determine the laws with respect to the influence of temperature on insects, they may serve a purpose, in showing that the effect is not that gradual one of hybernation, where activity and torpor succeed each other but slowly.

In the series of experiments with gas, it was found that flies placed in carbonic acid gas became instantly motionless, and died if left for any length of time. Some revived after an hour's immersion; others, after two or three hours—the revival being slow in proportion to the time of exposure to the gas. Somewhat similar results were obtained with flies and bees in hydrogen and azote. To try the effect of deprivation, a fly was shut up in a tube with but a small quantity of common air, on the 5th February, in a temperature varying from 52° to 60° during the whole time of the experiment. The insect manifested no uneasiness until the 25th day, and was found dead on the 28th. Another fly, enclosed in a similar tube, with a quantity of air not more than a few times its own volume, became languid on the second day, and motionless on the twelfth, but revived on being taken out.

Flies immersed in oxygen were found dead the second day, with a diminution of the quantity of the gas. Coal-gas produced almost immediate insensibility, with a few feeble attempts at revival, but in no case effectual. Sulphuretted hydrogen also proved especially fatal—an instant's immersion was sufficient to destroy life; though withdrawn at once, not one of the flies recovered. It was the same when the portion of gas diffused in the air of the tube was so minute as to be scarcely appreciable. On bees, too, the effect was similar; the deadly nature of the gas on their delicate organization being invariably destructive. Like results were obtained with chlorine.

In the class of vapors, ammonia proved fatal in one case, and harmless in another; muriatic acid stupified in two, and killed in twenty-four hours. The vapor of nitric acid was equally fatal with sulphuretted hydrogen; and, in alcoholic vapor, at a temperature of 74°, for a few minutes the fly showed increased activity; in a few more, it became motionless; after about a quarter of an hour, it appeared to be torpid. Now, exposed to the air of the room, in a few minutes a slight motion of its feet was seen; after a couple of hours, it was nearly as active as before the experiment; two hours later, it was found dead. The same effects, with slight variations, were produced on other flies. With ether, cessation of motion was almost instantaneous, followed, however, by revivification except in one instance; brief immersion in chloroform did not prevent revival, but an exposure of eight minutes killed; camphor and and turpentine were both fatal; with attar of roses, musk, or iodine, no ill effect was perceptible.

The experiments with prussic acid are worthy the attention of entomologists, with whom it is often a matter of importance to kill an insect with the least possible amount of injury. In these instances, the plan pursued was to charge a small tube with the acid, and place it inside that containing the insects. The vapor of 1-16th of a grain was sufficient to destroy bees and flies; and that of seven grains proved fatal to large beetles, and the largest kind of bees. Although as yet the investigation has taken but a limited range, it will be seen that it opens a wide field of research; the next step will be to group or class those agents which appear to have produced similar effects. It is remarkable, as Dr. Davy observes, "that most of the substances which, even in minute portions mixed with common air, prevent the slow combustion of phosphorous, as indicated by its shining in the dark, have the effect on the insects on which they were tried, of suspending animation."

He says further:—"Some of the results may not be undeserving notice for practical purposes—as those in the instances of sulphuretted hydrogen, oil of turpentine, and camphor, in relation to the destruction of parasitical insects, whether infesting plants or minerals, or to the preservation of plants, of course it is necessary that the agents to be used should not exercise on them any materially injurious effects. This must be determined by experiments made expressly for the purpose. The few trials yet made on seeds seem to show that the steeping them in a solution in water of sulphuretted hydrogen has not prevented their germination. The seeds tried were mignonette, cress-seed, and that of a Femophila; analogy—namely, that of steeping the seed of the cerealia in a solution of the white oxide of arsenic, is in favor of the same conclusion. Further, for the preservation of articles, whether of clothing or furniture, it is hardly less necessary that the substances to be employed should have no offensive odor. Judging from the effects of attar of roses, and from what we know of scented woods not being liable to be attacked by insects, the probability is, that any volatile oil of agreeable perfume will answer the purpose required, and prove a true instance of the *utile et dulce* combined.

As carbonic acid gas, and some of the other agents mentioned, produce merely a temporary torpor, it may be a question whether this gas, or simple immersion in water, may not be advantageously substituted for the fumes of burning sulphur, destructive of life, at the yearly gathering of honey; the former, indeed, may be said to be in use in the Levant, where the smoke of the fire of leaves, in which the carbonic acid generated may be considered as chiefly operative, is employed to stupify the bees preparatory to the spoiling of their hives."

Stages and Railroads---Steam Coaches.

A line of omnibusses has commenced to run between Jersey City and Newark, N. J.; the stages are new, and are to run in opposition to steamboats and railroads. Now a very important question arises here, "will these stages pay?" the charge is to be only 12½ cents for nine miles; the same fare as the steamboats, and one half only of the railroad. We have a suggestion to make here, viz., that this road would be a most excellent one for testing the economical value of steam coaches on plank roads. Here would be fair competition, and a fair test of the superiority or inferiority of stages to steam coaches. If the steam coach should prove successful, then we would be justly responsible for having taught and held wrong doctrine. We are willing to bide the result. Without a fair test—a contrasting test of the merits of steam coaches on common or plank roads, no person will be satisfied, and no one should be.

Railroad Accidents.

During the past year 90 lives were lost by railroad accidents in New York, and 50 were maimed and wounded; this is mentioned in the report of the State Engineer, which does not include the accidents on the Hudson River and Harlem Railroads. We have seen a statement in a number of our exchanges, wherein it is asserted that more accidents take place on the English than on the New England railroads. There must be some mistake about such assertions: it is not possible, with our New England system, to run as safe as in England, where no collision can take place except by one train running up behind and into another, a thing which has occurred only once or twice in a number of years.

Irish Peat.

The chemical operations of the Irish Peat Company, which commenced on the 8th of December, have been continued since that time. It is now stated that the results have steadily realized the calculations put forward, and the practicability of employing the waste gases for the purpose of fuel has also been fully demonstrated.

There are many peat bogs in the United States which will yet come into use. At present, we believe, nothing is done with them.

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TO CORRESPONDENTS.

A. H. R., of Pa.—We cannot be calculating this and that power of machinery, continually, merely to save others the trouble of doing so themselves. Any person can tell the power of a moving body by multiplying its weight, or whole pressure, by its velocity.

W. W., of Tenn.—You will require a 12 horse-power engine; four horse-power for each run of stones, and four horse power for the other machinery. An engine was advertised two weeks ago, in our columns, complete, for $1200.

C. A., of Me.—A patent can be taken for England and the colonies included under the same grant. Separate patents are required for Ireland and Scotland. A patent in England, unlike any other country, is granted to the introducer as well as the inventor, and although the inventor may afterwards apply, he will find himself too late.

H. G. B., of N. C.—The article upon brick machines in No. 25 is from the pen of F. H. Smith of Baltimore, Md.

S. B. W., of N. Y.—We cannot decide the point suggested in yours of the 29th ult., until we can examine a model, and as you have one nearly ready, you had better send it forward with a full description.

D. C., of Pa.—You may not be aware of its being quite a common thing for the black snake to rob hens' nests; but the eggs never would be hatched out into chickens.

J. P. R., of Pa.—Your subscription is now paid for until Vol. 8, No. 26.

A. H., of N. C.—We have examined the sketch of your alleged improvement in churns, and see nothing in it of a patentable character. We have seen atmospheric churns having a single cylinder and air pump substantially similar to yours, and the mere fact of using duplicate cylinders and pump is not patentable in the eyes of the law.

W. McF., of N. Y.—We shall publish yours on the leakage of gas pipes in a short time; we have not yet been able to get room for it.

D. C., of N Y.—Your rotary engine is not new. See the same principle in Vol. 4, Sci. Am., "History of the Rotary Steam Engine."

J. F. H., of N. Y.—You will see "the facts never yet published," in a a short time. We have noticed the vessels you speak of crack and chip when exposed to water—hot and cold—but not otherwise. We hope you will discover the indelible pencil. It will be better to wait until the articles appear in our columns, and then make the correction.

E. T., of Va.—We have never seen a steam wheel like yours, but it is not correct in principle to use the re-action force of steam to propel an engine.

G. C., of N. Y.—Your plan of a bridge is indeed different from Houghton's, but it is the same as many others which have long been used: it is a drawbridge, and would not answer for places where Mr. Houghton's would.

H. J., of Ohio—Is not the phenomenon of latent heat as mysterious to you as that airless water should flash into steam at 300 deg. The experiments alluded to, were made by Faraday with Norwegian ice; he is responsible for the statement.

J. R. M., of S. C.—There can be no doubt but your buffer would lessen the terrific effects of collisions: we have never seen one like it. We have heard that strong india rubber buffers were used in England for the same purpose.

Money received on account of Patent Office business or the week ending April 3:

R. & H., of N. Y., $20; S. & S., of Pa., $5; H. U., of N. Y., $40; W. R., of R. I., $39; J. S. M., of Vt., $32; S. C., of L. I., $20; D. R R., of N. Y., $45.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending April 3:

G. B. P., of Pa.; C. B., of Ohio: H. U., of N. Y.; J. H. G., of Ohio; W. R., of R. I.; D. H., of Va; W. McQ, of N. Y.

Literary Papers.

We have entered into an arrangement with the publishers of the "American Model Courier," of Philadelphia, and the "American Union," of Boston, which will enable us to furnish either of the two, with the Scientific American, for $3 per annum. They are literary journals of the first order, and are widely circulated in all sections of the country.

☞ Parties cannot be allowed an addition of one of the Literary papers, as above, by remitting a single dollar after paying their year's subscription to the Scientific American; neither can they be permitted to avail themselves of the above conditions for a less term than a full year, and on the precise terms advertised. Money received under other circumstances will be credited in continuance of the Scientific American.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying

Persons writing us without signing their names to the communication, are considered as not acting in good faith, or as mistaking the rules which govern all newspaper establishments, and are therefore not attended to.

ADVERTISEMENTS.

Terms of Advertising.

4 lines, for each insertion,	-	-	50cts.
8 " " "	-	-	$1,00
12 " " "	-	-	$1,50
16 " " "	-	-	$2,00

Advertisements exceeding 16 lines cannot be admitted; neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

CHARLES F. MANN, FULTON IRON WORKS, Below the Troy and Greenbush Railroad Depot, Troy, N. Y.—The subscriber builds Steam Engines and Boilers of various patterns and sizes, from three horse power upward; also, his Portable Steam Engine and Boiler combined, occupying little space, economical in fuel, safe, and easily managed; Double Action Lift and Force Pumps; Fixtures and Apparatus for Steam or Water; Tools for Machine Shops; Shafting and Pulleys for Factories. Brass Castings and Machinery made to order at short notice. Steam engines furnished cheaper than can be had elsewhere, of the same quality. 30tf

STATE AGRICULTURAL WAREHOUSE—LONGETT & GRIFFING, dealers in Agricultural Implements, No. 25 Cliff st., (near Fulton), New York Field and Garden Seeds. Guano and other Fertilizers. 29 4*

N. G. NORCROSS'S ROTARY PLANING MACHINE UNEQUALLED—This machine took the first medals awarded to Rotary Planers at the Fair in Boston and at the American Institute, in the Fall of 1850. The Circuit Court. in the Eastern Circuit, held at Boston on the 24th Feb., before his honor Judge Sprague, decided, after a long and tedious litigation of two years, that the Norcross Machine does not infringe the Woodworth Patent; this was on a motion for a permanent injunction, which was refused without ordering a jury trial. Rights to use this patent are for sale by N. G. NORCROSS, Lowell, Mass. 29 8*

TO LUMBERMEN—E. H. & S. E. PARSONS, inventors of the Self-straining and Self-ranging Saw Frames, for saw-mills, combining the advantages of both the muley and gate mills and superior to either, reducing the wear and tear to about one-fourth. The saw will bear as much feed, and is as easily kept in order, and is warranted to saw the same amount of lumber with one-fourth less power. They may be seen in successful operation at the Empire Works, Binghampton, Broome Co., N. Y., where they are manufactured, and at Frankfort, Ky., and Cass, Tenn. For further particular address (post-paid) Wilkesbarre, Pa. 29 5*

DRAUGHT BOARDS, PATENT—23 by 29 inches, various scales; also Paper Fasteners, all for quick work, superior to fig. 3 in Sci. Am., No. 2 Vol. 3. $10, with T Rule. Sent by Express, Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 29 4*

IMPORTANT TO IRON FOUNDRIES—The Galvanic Alloy Manufacturing Co., Nos. 401, 403, and 405 Cherry st., N. Y., will furnish the Aerostatic Fan Blower at $55, and with patent fitting at $65, that produce sufficient blast for the longest cupola, melting 3 and 4 tons of iron per hour; taking less than one half the power of those now in use, that cost from $80 to $100. The wings. being only about an inch in width (planned upon entirely new and mathematical principles), produce double the blast with half the power of other blowers. Warranted in all cases, or they may be returned and the money refunded. 29tf.

INSTITUTE FOR SURVEYORS AND ENGINEERS, West Bloomfield, N. J.—The next session of this Institute will commence May 1st, and continue five months. The course of study embraces Trigonometry, Mensuration of Surfaces and Solids, Heights, and Distances; Navigation, Surveying, Conic Sections, Descriptive and Spherical Geometry, Mechanics, Theoretical Mechanics, Chemistry, Industrial Chemistry, Physics, Industrial Physics, Mechanical Philosophy, Architecture, Steam Engines, Mechanical and Architectural Drawing, &c., &c.—Terms—For board, washing, fuel, lights, and tuition, per Session of five months, $125. No extras. References—Geo. Gifford, 17 Wall st.; S. R. Parkhurst; Maj J. D. Stevens, U. S. Engineer; J. W. Adams, 25 Nassau st. WARREN HOLT, Principal. 29 2*

MORSE'S AIR DISTRIBUTOR—For Burning Sawdust and Tan to generate steam—no steam saw mill is complete without it. Rights to use it in the State of New York for sale by L. A. SPALDING, Lockport, N. Y.; or JOHN A. CAMPBELL, Buffalo, N. Y. 28 4

PORTER'S GRADUATING VALVE TUYERE—Illustrated in this paper Sept. 6, 1851, gives a sure, quick, and clean heat, and saves full 25 cts. per day to each fire. For sale, wholesale and retail, at No. 9 Gold st. W. J. & J. H. BURNETT. 28 4*

SCHENCK'S MACHINERY DEPOT, No. 64 Courtland st., N. Y.—Has on hand a great variety of Slide and Hand Lathes, Upright Drills, Steam Engines, of 3 1-2 and 6 horse power, and will receive order for engines of any size; Universal Chucks, Iron Planers, White's Patent Lathe for turning Railroad Car Axles, Hand Punches, and Shears; F. Harriss & Son's Scrut and Scouring Machines; Fairman's Chuck Lathe for Boring Car Wheels, &c., all of which I will sell as low and upon as accommodating terms as any house in the city. 27 5* SAM. B. SCHENCK.

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago; I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.

Nashville, Tenn., 1851.

This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20. MUNN & CO.

STEAM ENGINES AND BOILERS—The patentee is now ready to supply orders for steam engines with Ayer's Patent Improved Boiler of any size required. These boilers occupy but little space, can be set up without brick work, and will make more steam with the same fuel than any other boiler. A self-acting feeder furnishes a constant supply of water, preventing thereby, in a great degree, the danger of explosion. Where doubts are entertained as to the superiority of these boilers, I will be content to receive for the right one-fourth of the value of the fuel saved by their use. Portable engines furnished to order. E. AYER, Patentee, Norwich, Conn. 26 7*

JOHN W. GRIFFITHS—Ship Builder and Marine Architect, 658 Fourth st., N. Y., furnishes models and draughts of all description of vessels, with the computation of stability, capacity, displacement, and necessary amount of impulsion. Propelling power located and proportionably adapted to the form of the vessel. whether sailing or steaming. Mr. G. also superintends the construction of vessels, and may be consulted upon all subjects pertaining to the various departments of the science or practice of ship building. Draughts forwarded by letter to all parts of the world, and to any desired scale; all letters must be post-paid. 27 13*

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting. 27tf P. A. LEONARD.

BAILEY'S LATHE—For Turning Broom and other Handles, Chair Stuff, straight, swelled, or tapering, warranted to do twice the work of any other lathe. Address L. A. SPALDING, Lockport, N. Y. 28 4

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting entirely the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior to any made in the United States, (the highest grade warranted to vary less than two minutes in twelve months). Glass dials for illumination furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius." [Jour. of Commerce. 26tf.

THE SUBSCRIBER is now finishing four 14 horse engines, with boiler and apparatus all complete—price $1200 each. Several 6 horse engines extremely low: also, several of smaller capacity, completely; also, several power plainers, now finishing. Galvanized chain for water elevators, and all fixtures—price low—wholesale and retail. Orders, post-paid, will receive prompt attention. AARON KILBORN. No. 4 Howard st., New Haven, Ct. 23 10*

TO FELLOE AND SNATH MAKERS—The undersigned having purchased the entire right of A. W. Johnson, for his machine for bending carriage felloes, &c., are now prepared to sell State or county rights for said machine; having used said machine for several years, we know it to be a saving in timber of 30 per cent, and more expeditious. Persons can see one of the machines at work at the manufactory of W S. Johnson & Co., St. George's, Del.; also felloes of all kinds. Shafts and carriage stuff always on hand, and at prices to suit dealers in the above. WM. G. JOHNSTON & Co., 22 10* St. George's, Del.

A CARD—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to our new and extensive assortment of fine English (Stubbs) and Swiss Files and Tools; also our imported and own manufactured Mathematical Drawing Instruments of Swiss and English styles—which we offer at very reasonable prices. Orders for any kind of instruments will be promptly executed by SIBENMANN & QUARTIER, Importers of Watchmakers' and Jewellers' Files and Tools and manufacturers of Mathematical Instruents, 15 John st. 23 13*

IRON FOUNDERS MATERIALS—viz.: fine pulverized Sea Coal, Anthracite and Charcoal, Black Lead and Soapstone Facings. Iron and brass moulding sand; Core sand and flour; English Fire Bricks for cupolas, &c. Fire Sand and Clay—for sale by G. O. ROBERTSON Liberty place, (near the Post Office) N. Y. 23 10*

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

POST'S PATENT SLIDING DOOR FRONTS—for stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman and Son, 114 John st, N. Y., are general agents. Address, (post-paid) Wm. POST, Architect, Flushing, L. I. 25tf

NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

DRILLING MACHINES—Self-Acting Drilling Machines, of the best construction, capable of drilling holes from one-eighth inch to three inches diameter, with a suitable feed, manufactured and for sale at the Atlas Foundry, corner of Green and Wayne sts., Jersey City. JOHN D. WARD. 27 4*

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish. QUARTERMAN & SON, 114 John st., 23tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

MALLEABLE IRON FOUNDRY, EASTON, Mass—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Easton Express, Boston, Mass. All letters will be promptly attended to. 21 10* DANIEL BELCHER.

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

THE EXCELSIOR Sand and Emery Papers. are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS, 14 6m* Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

MACHINIST'S TOOLS.—Marshall, Bement & Colby, (successors to E. D. Marshall & Co) Callowhill street, west of Schuylkill Third, Philadelphia, Pa., are prepared to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Bolt Cutting Machines, with P. W. Gates' Patent Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's Patent Scroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 *

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 21 10*

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis. 15 20*

1852 TO 1856.----WOODWORTH'S PAtent Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf

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SCIENTIFIC MUSEUM.

Agricultural Science.

METHODS OF DETECTING ADULTERATIONS IN GUANO.—As a great number of our farmers are beginning to use guano, and as a great number more are making anxious enquiries about it, the following methods of detecting adulterations in it are from the English Agricultural Gazette, by J. C. Nesbit, F. C. S., Principal of the Agricultural Academy, Kennington :—

"Procure from any druggist a common wide-mouthed bottle, with a solid glass stopper. One known as a wide-mouthed 6-oz. bottle will do very well. Let this bottle be filled with ordinary water, the stopper inserted and the exterior well dried. The scales to be used ought to turn well with a couple of grains. In one pan of the scales place the bottle, and exactly counterpoise it in the other by shot, sand, or gravel. Remove the bottle from the scale, pour out two-thirds of the water, and put in 4 oz. avoirdupois of the guano to be tested. Agitate the bottle, adding now and then a little more water; let it rest a couple of minutes, and fill it with water so that all the froth escapes from the bottle. Insert the stopper carefully, wipe dry, and place the bottle on the same scale from which it was taken. Add now to the counterpoise scale 1½ oz. avoirdupois, and a fourpenny piece; and if the bottle prove the heavier, the guano is in all probability adulterated. Add in addition a threepenny piece to the counterpoise; and if the bottle and guano prove the heavier, the guano may be considered as adulterated. By this simple experiment a very small admixture of sand, marl, &c., is distinctly shown. From many experiments it appears that the amount of inorganic matter, or ash, is from 30 to 35 per cent. This affords another method of detecting adulteration. A small pair of scales, a little platinum capsule, a pair of little tongs or pincers, and a spirit lamp, are all that are required. Ten grains of guano are placed in the platinum capsule, which is held by the tongs in the flame of the spirit lamp for several minutes, until the greater part of the organic matter is burnt away. It is allowed to cool for a short time, and a few drops of a strong solution of nitrate of ammonia is added, to assist in consuming the carbon in the residue. The capsule is again gently heated (taking care to prevent its boiling over or losing any of the ash.) until the moisture is quite evaporated. A full red heat must then be given it, when, if the guano be pure, the ash will be nearly white, and will not exceed 3½ grains in weight. If adulterated with sand, marl, &c., the ash will always be colored, and will weigh more than 3½ grains. If the adulteration be made with light or flocculent matters they may be detected easily as follows :—Dissolve in a quart of water as much common salt as it will take up, and strain the solution. Pour a quantity of it into a saucer or basin, and sprinkle on the surface the guano to be tested. Good guano sinks almost immediately, having only a very slight scum. The adulterated leaves the light materials floating on the water. If chalk or ground limestone be used, it may be shown by pouring strong vinegar over a tea-spoonful of the sample placed in a wine-glass. On stirring, effervescence shows its presence. Genuine guano, under the same circumstances, merely allows the escape of a few air bubbles. If farmers could be prevailed upon to spend a small portion of their time in trying the foregoing experiments on the samples of guano they use, the fraternity of rogues would certainly have far less chance than they at present possess for pursuing their calling with profit. Still these simple operations are only offered to the farmer as a means of detecting the grosser adulteration of guano. Minor ones may still be practiced, and men of real intelligence and business habits will regularly call to their assistance the aid of the analytical chemist. Summing up the experiments the following facts would appear :—

1st. If 4 oz. of guano weighed with bottle and water, as previously directed, take more than 1½ oz. and 1 fourpenny piece to re-counterpose it, its purity is doubtful. If an additional threepenny piece is required, the guano may be considered as adulterated, and the sample should be immediately analyzed.

2nd. If the ash is colored in any way, and not of a pearl white, the guano is bad.

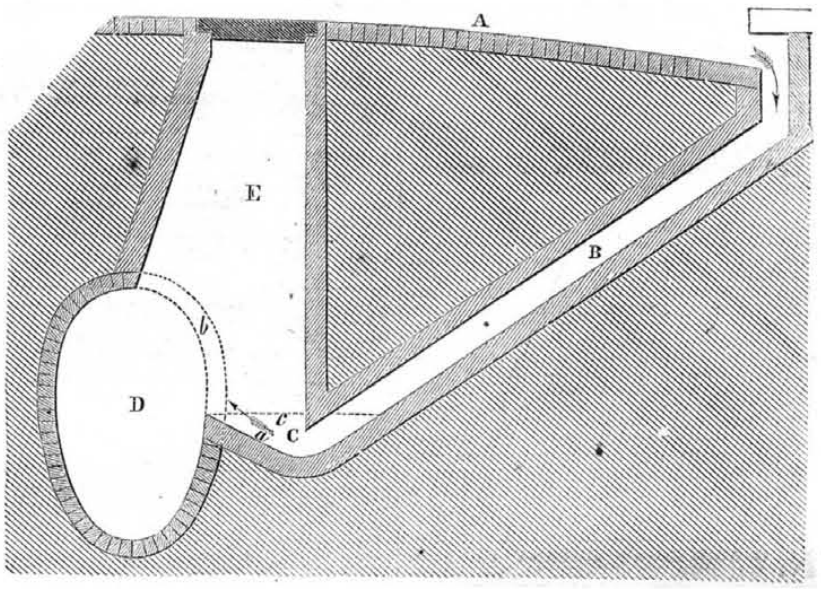
3rd. If the ash of 10 grains weigh more than 3½ grains, or less than 3 grains, the genuineness of the sample doubtful.

4th. If strong vinegar cause a considerable effervescence when mixed with the sample, the latter is adulterated.

5th. If guano float when sprinkled on strong salt and water it is not genuine."

[There is just as much difference in the quality of guano as there is in other kinds of manure. We have had the enquiry made of us lately, how to use guano. For top dressing Johnson recommends it to be used weight for weight with charcoal powder, gypsum, or dry fine earth. It may also be mixed with wood-ashes.

DAY'S IMPROVEMENT IN STREET SEWERS.



The accompanying engraving is a longitudinal vertical section of the improvement in Street Sewers, invented by Willard Day, of the city of Brooklyn (N. Y.), and patented on the third of last February. A is the street; B is the culvert, which is inclined, as represented. C is the basin at the lower end of the culvert communicating with the sewer. *a* is the inclined side of the basin; D is the sewer; E is the man-hole, directly over the basin, C, and passing upwards into the street, A. *b* is the opening or passage that leads from the basin into the sewer. The object of basins to culverts is for the purpose of preventing offensive effluvia arising from the sewer into the street; the effluvia being prevented from passing into the street by the water in the basin that is filled, in consequence of the basin being lower than the passage, *b*, which leads into the sewer. The dotted line, *c*, indicates the water line. As the basin is lower than the passage, *b*, which leads into the sewer, it is evident that dirt and other matter, which passes down the culvert with the water, will eventually fill it up. To guard against this, the basin, C, is placed at the lower end of the culvert, B, and adjoining the sewer, D, the side, *a*, of the basin is inclined, somewhat less so, however, than the culvert. Now, the water and matter which may be mixed with it in passing down the culvert, B, as indicated by the arrows, will acquire sufficient momentum to pass up the short incline, *a*, and fall into the sewer, thus preventing the accumulation of sediment and dirt in the basin, C.

The culverts at present in use have a fall straight down to the basin, and then an incline from the top of the basin at the one side direct into the sewer. The nature of this improvement consists in placing the basin at the lower end of the culvert, and adjoining the sewer, in combination with a single man-hole, so placed as to give access to both basin and sewer, as represented by E. The side of the basin that adjoins the sewer is inclined, and so is the culvert, in order to make the gravitating force of water, as it passes down the incline, B, carry over sedimentary effluvious matter into the sewer; the filling up of the basin is thereby prevented, and the offensive matter, which accumulates and sends up its noxious odors from all our common built sewers, is carried away down, and such evils are thereby obviated, to the general benefit of the community. In case of the basin getting clogged up with sticks or such like impediments to the water, a person can descend by the man-hole, E, remove the obstruction and clear the basin, and the dirt (which is very offensive) can be placed in the sewer, and will be swept away the first heavy rain. Such an improvement in sewers will tend to make our cities more healthy, for there can be no doubt but that offensive sewer odors cause much disease during hot seasons. One man-hole, in this case, may answer for four sewers, where four streets meet, not like the common sewers, which require a man-hole for every sewer at each corner. This improvement in sewers will no doubt soon be generally adopted, as it should be, in all our cities, to the manifest improvement of health and sweet breezes.

More information may be obtained by letter addressed to Mr. Day.

Coffins of Baked Clay of the Chaldeans.

Mr. Kennet Loftus, the first European who has visited the ancient ruins of Warka; in Mesopotamia, and who is attached to the surveying staff of Colonel Williams, appointed to settle the question of the boundary line between Turkey and Persia, writes thus :—

"Warka is no doubt the Erech of Scripture, the second city of Nimrod, and it is the Orchoe of the Chaldees. The mounds within the walls afford subjects of high interest to the historian and antiquarian; they are filled, nay, I may say, they are literally composed of coffins, piled upon each other to the height of forty-five feet. It has, evidently, been the great burial-place of generations of Chaldeans, as Meshad Ali and Kerbella at the present day are of the Persians. The coffins are very strange affairs; they are, in general form, like a slipper bath, but more depressed and symmetrical, with a large oval aperture to admit the body, which is closed with a lid of earthen ware. The coffins themselves are also baked clay, covered with green glaze, and embossed with figures of warriors, with strange and enormous coiffures, dressed in a short tunic and long under-garments, a sword by the side, the arms resting on the hips, the legs apart. Great quantities of pottery and also clay figures, some most delicately modelled, are found around them, and ornaments of gold silver, iron, copper, glass, &c., within."

Elephants' Bones.

The laborers on the Great Western Railroad, in Canada West, have dug up the remains of some old elephant in a gravel bank. One of the tusks was 6 feet 9 inches long. Many are wondering how they came there. Those who believe that the axis of the earth was truly perpendicular before the Flood, find no difficulty in accounting for the bones of now tropical animals being found in the arctic regions.

New Kind of Tobacco.

A new kind of tobacco is cultivated in some places in Maryland. It is named Persian tobacco, is of a beautiful color, and commands a high price.

Rifled Muskets.

By late accounts from Europe, the British army was being equipped as fast as possible with rifled muskets; companies of regiments are sent to Woolwich, from various quarters, and they are trained to the use of the rifle, like artillerymen at their guns. The next war in Europe will be a murderous one with bullets. Our regular army will soon have to follow suit, and use the rifled musket too. It is the arm for our marines; they should all be armed with it as soon as possible.

The City of Toronto, Canada, has increased from 1,719, in 1826, to 30,763, in 1852; this is very good, indeed, for Canada, but it is not at all to be compared with Chicago, and many other cities in the States.

LITERARY NOTICES.

SMEE'S ELECTRO-METALLURGY.—Published by John Wiley, No. 18 Park Place. We are glad to see this able book re-published in America; Mr. Wiley deserves credit for it, and for the neat manner in which it is got up; it is from the third London edition. The fame of Alfred Smee is world-wide. The work treats of the different kinds of batteries, their properties, sources of voltaic power, electro-metallurgy in all its branches, batteries for blasting etc.; it contains 41 wood cuts, and is a work that no man, having a taste for science, can be without. Mr. Smee pays a well deserved tribute to the discoverer of amalgamated zinc plates for electric batteries, and he does it in such a manner that we cannot help quoting it, to show that all true lovers of science—men of genius—are democratic, wherever their lot may be cast—in London or New York. He says, "Let us never forget to whom we owe this discovery, which, of itself, enables galvanic batteries to be extensively used in the arts. Ages to come will have perhaps to thank the inventor, whom we are too apt to forget, because he was neither of the Council of the Royal Society nor a London Professor, yet still the obligation to Mr. Kemp is the same." Price $1,25.

MAHAN'S CIVIL ENGINEERING—The sixth edition of this able work, by D. H. Mahan, A. M., Professor of Civil and Military Engineering at West Point, is just issued by John Wiley, along with Smee's work; there are a large addenda and many new cuts in this edition. This work is well known, its character has long since been established. This new edition requires but to be noticed by us. The price is $3.

AMERICAN ENGINEERING—This is a new work, Part I. of which is before us, edited by Frederick Mone, C. E., and published by H. S. Samuels, No. 8 Park Place, this city; it contains two very large and detailed drawings of the engine of the North River crack steamboat "Reindeer," which was built at the Morgan Works, by A. Guion, Engineer. We are glad to see such a work as this coming from the American press. Every young mechanic should subscribe for it for a certainty, and no American engineer should be without it. Each part costs $1; it is accompanied with letter press explanation. The engravings are very large and well executed.

TALES AND TRADITIONS OF HUNGARY—J. S. Redfield, Clinton Hall, has placed upon our table a book of 350 pages, bearing the above title, from the pen of Madame Pulszky, one of the Hungarian refugees, who is now travelling in the South and West, accompanying her husband, Count Pulszky, and the renowned Kossuth. The stories related in this book are written in a pleasing style, and we predict for it an extensive sale. Price $1,25.

ISA, A PILGRIMAGE—By Caroline Chesebro: Redfield has also just published another gem from the pen of Miss Chesebro, authoress of "Dream Land by Daylight," noticed by us a few weeks ago.

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Mechanics and Manufacturers

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N. B.—The public are particularly warned against paying money to Travelling Agents, as none are accredited from this office. The only safe way to obtain a paper is to remit to the publishers.

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